

Radio Control

47380

SPECIAL COLLECTORS' ISSUE!

February 1996

CAR ACTION

THE WORLD'S LEADING R/C CAR MAGAZINE

**Affordable
Monster
Truck Fun!**

**Traxxas
Nitro
Stampede**

**plus FLYING POINT Pizazz
PARMA Dodge Ram**

HOW TO



**REBUILD YOUR
TRANSMISSION**

**TUNE YOUR
STOCK MOTORS
BEGINNERS'
BUILDING TIPS**

**ROAR
Off-Road
Nats**

Road Car Reports

**TAMIYA
Renault Clio**

**KYOSHO
Spider Mods**



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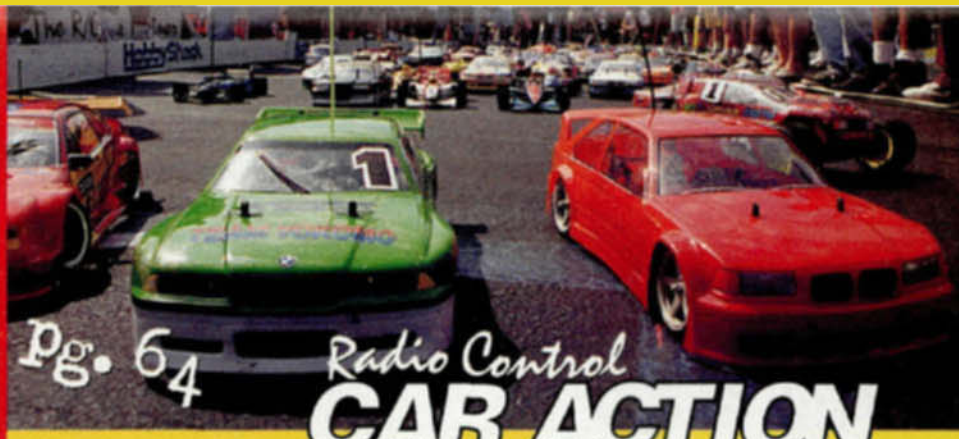
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EDITORIAL



It's hard to imagine, but this issue marks the 10th anniversary of *Radio Control Car Action*. When I think about all that has taken place in the hobby during the past decade—where we started, where we are and where we're headed—my mind reels! One thing that hasn't changed is the philosophy on which *Car Action* was founded: to capture the excitement and creativity of the R/C car hobby and to provide you with the most detailed, accurate and current informa-

Car Action Turns 10

tion. Be sure that we'll be carrying this philosophy with us during the next 10 years as well!

For such an auspicious occasion as the 10th anniversary of *Car Action*, I thought it only fitting that I share 10 of my deepest, most private thoughts on the R/C car hobby. (If you really want to find out what has been going on for the past 10 years, see our "10 Years of Car Action" feature elsewhere in this issue.)

1. You know how when you solder, all the smoke and toxic fumes go right up your nose and into your eyes? Don't you hate that?
2. I used to be able to drive 8-minute, 1/2-scale races without losing concentration, or even blinking. Nowadays, I can't go one lap without scratching my face, or shrugging a shoulder in an attempt to dislodge some amorous insect.
3. Honestly, I'd rather go to a track where I can win by seven laps than have to compete against guys who are as fast, if not faster, than me. It's much less stressful.
4. Sometimes, someone will ask to borrow a pinion gear, and I'll say "Nope, sorry, I'm using that size on my car." Although I've never admitted this before, I'll tell you: I lied. I have three pinion gears of the size that you need, I just don't want you to use them and beat me with my own pinion gear.
5. I wash all my off-road tires in a bucket of water and Armor-All™ cleaner before every run just to hear the kids standing by the side of the track whisper, "Wow, that guy uses new tires every time he runs." Smirk.
6. No group is as collectively funny (or as smelly) as five R/C racers crammed into a single-occupancy hotel room, working on their cars at five in the morning.
7. New associate editor George Gonzalez spent his first Sunday in Connecticut racing with us on our parking-lot track. George, remember all those times I put you into the weeds, then yelled, "Who's on 68?!" I'm on 27 band.
8. The R/C track is just not the place to get dates.
9. I'll deny this in court, but a gallon of 30-percent-nitro fuel will make even a Geo Metro act like Mel Gibson's Mad Max™-mobile with the blower engaged.
10. But seriously (you knew this was coming sooner or later), I'm so grateful to be involved with this fun and rewarding hobby. I've met so many new people and have made many new friends through R/C cars (except for that guy who hit my truck during the Main last weekend!). If I hadn't stolen that Hornet from my dad, who knows what I'd be doing right now instead of writing this. One thing's for sure; I wouldn't be having this much fun!

Frank Masi, Executive Editor

We want to hear from you!

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**RACE READY**

I am seriously considering opening an indoor R/C track, but I don't know where to begin. There are a lot of things that I'll need, including a computer lap-counting system, plastic barriers, a small hobby shop and an affiliation with ROAR.

Could you send me the addresses of some companies that deal with these things? Also, if you know any former track owners who have any of these things for sale, I would really appreciate it!

MICHAEL WALKER
Waco, TX

Well, Michael, I don't know anyone who has used hobby-shop or race-track equipment for

sale—sorry. But, I do know who you should talk to about getting started with your track/shop plans—Fred Howhart at ROAR, 30872 Coast Hwy., Ste. 111, Laguna Beach, CA 92677. He should be able to point you in the right direction. You might also want to contact J.R. Sitman at NORRCA, 1651 W. Foothill Blvd., Ste. 225, Upland, CA 91786. Good luck with your quest.

Doogie

SOUPED-UP SANDMASTER

My brother gave me his 4-month-old Sandmaster 10 combo; he bought a new RC10GT with a .12 TNT Dynamite engine. I was

impressed with the speeds from the Sandmaster, but it seemed to be stuck in low gear compared with my brother's RC10GT. My question is: what kind of hop-ups can I put into my Sandmaster to give me speeds that will rival the RC10GT, or let me go even faster? If I can't get the speed I want from the Sandmaster 10, what other buggies are out there that will smoke past my brother's GT? Oh, and my brother says that the RC10GT is the ultimate R/C car and that no other R/C cars are of as high quality as Team Associated's RC10GT. His words were, "Sure, you could buy an off-road buggy that could give me a run for my money, but while you're repairing yours after a race, I'll still be running mine." I need a buggy to compete with his truck.

BARRY BLAKE
Boone, NC

Well, Barry, here's the deal. If you add these hop-ups to your Sandmaster, it will definitely perform better.

KYOC2176—ball diff;
KYOC2195—bearing set;
KYOC2197—bearing
5x10 (2); KYOC2207—
bearing 4x8 (2);
KYOC2217—bearing
8x14 (2); KYOC3332—
drive washer (4);
KYOC3475—equalizer
shocks (two short);
KYOC3477—equalizer
shocks (two long);
KYOC3388—adjustable
rod set; KYOC5863—
spring asst. set (short);
KYOC5885—spring asst.
set (long); KYOC5944—
stabilizer set;
KYOC5127—universal
swing shaft.

With these modifications, you should be able to keep up with your bro! In fact, you might even beat him! Good luck. *Doogie*

FROM OFF-ROAD TO SEDAN

I have a Kyosho Lazer Sport, and I've been thinking about converting it to a sedan racer. I don't know what to do, so would you give me some suggestions? Any reply would be greatly appreciated; and keep up the good work!

LOUIS ISE
Livonia, MI

The conversion is possible, Louis. Here are the parts you need to complete it: KYOC2531—body-mount set; KYOC5242—tires (one pair); KYOC6417—wheels (one pair); KYOC2380—Alfa Romeo body set, or KYOC2379—Skyline body set. Good luck with the swap. When you have it all set up, you might want to check out getting a set of bearings, if you haven't already done so. If you want to go all-out, most of the optional hop-up parts that are available for the Lazer should fit your car, too.

Doogie

BIG WHEELS KEEP ON TURNIN'

I love big trucks, and I think "Project Big Truck 2" is the coolest. But I have a couple of questions that I probably won't be able to answer without help from you experts.

I have a Bull Head with a Clod-A-Leaver 2 chassis and suspension. To power it, I have a 4400mAh battery pack. What would be a good 15-minute charger for it? Also, in an old Tower Hobbies catalogue, I saw an advertisement for a pulling sled, but I don't know what brand it was; sorry. Do you know of anybody who still makes pulling sleds?

(Continued on page 10)

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LETTERS

(Continued from page 8)

Thanks, and keep up the great work.

DALLAS CHAPPELL
Paradise, CA

Well Dallas, for 4400mAh packs, your best bet is to charge them at 10 amps. I know that sounds high, but it's a good rate for these cells. I don't know of any 15-minute timer chargers that have a variable amp rate that goes up to 10 amps, so I asked Neal McCurdy at Trinity how he would do it. He recommends that you charge all six cells at once for between 60 and 90 minutes, or until they are very warm—but not hot! When they're warm, you should obtain maximum run times.

I don't know of anyone who makes sleds now. Try calling Hobbico at (217) 398-3630 to see whether they have any left in their inventory. If you have no luck there, give Don Hubert a call. Don is the president of the National Radio Control Truck Pulling Association, and he might be able to point you in the right direction. Eric Suttcliffe at ESP Mfg. [(815) 455-5440], or Larry Bennett at Bennett Equipment [(317) 538-2725] also might be of help. Good luck! Doogie

TRACK TIME

Your magazine is great, and I've recently become a happy subscriber. I have two comments/questions. Even though I live on the outskirts of Toronto, there don't seem to be any clubs or racetracks nearby—off-road, on-road, carpet, etc. This upsets me and though I would like to get serious with R/C cars, I don't see the point of buying a high-quality car and equipment when there are

no racetracks. Do you have any ideas how a few friends and I could set up a simple track in a parking lot, vacant tennis court, etc. Also (although I doubt it), maybe you have instructions on how to build a permanent track? I have enough free space on my property, and it would be great, even if it would be a little expensive to build and maintain. I am especially interested in off-road tracks.

ARIF BANDALI
Brampton, Ontario, Canada

Well Arif, the free space on your property sounds like a good deal. I'm assuming that it's not paved and that it's a dirt lot. If so, then you've won half the battle. It's usually pretty hard to find an area where you can permanently set up a track. Check out our May '94 and January '95 issues for articles on how to build an off-road track and our October '95 issue for how to build a parking-lot track. All three articles provide great info that will help you and your friends start racing. Doogie

RADIO STATION

Something has been bothering me ever since I started racing R/C cars (five or six years ago)—radios! At the hobby shop I go to, at least 12 or more radios are on display! When I got my RC10, after choosing the ESC, batteries, motor and then the radio, I was frazzled; I couldn't make up my mind! So, now to my point: could you do an article or a special feature on radios?—stick and wheel, AM and FM. Try 'em, rate 'em, price 'em

and give general info and hits and misses. I know a lot of people out there share my concern. Any help in this matter would be greatly appreciated. Thank you for your time! CORY KAPPLER
River Grove, IL

Cory, check out our November '95 issue. We ran a huge radio feature that covered 19 budget radio AM systems. If you want an inexpensive AM radio system, this is the article to check out. Also look in our June '95 issue—"AM, FM, PCM. What's The Difference?" It tells you all you need to know about every type of radio, and it also provides helpful hints on how to choose one that's right for you. Both articles will help you start to understand radios better.

Doogie

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897-3035. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

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DOWN AND DIRTY

Following much arm twisting by his friends, Michael Bondarenko of Willingboro, NJ, sent us this photo of his Clod Buster. His monster sports an ESP Clodzilla III chassis, custom-made, 5-inch, 4-link bars, Trinity long shocks, full bearings and custom sway bars. It's controlled by Futaba radio gear, and a Tekin ESC delivers power to the Trinity Sapphire motors, which have adjustable mounts. Michael was quick to point out that his truck "is not a show baby" like the rest of the Clods he has seen in the mag. I don't know, Michael; it looks pretty clean to us.



18-WHEELIN' WOLVERINE

John Jacobus of Westland, MI, a member of the Wolverine Truck Pullers of Michigan, sent us this photo of his tractor trailer—"Brutus." A Parma body with a Parma hemi kit ride on the scratch-built chassis. John also made the remote oil filters, the rear fenders and the front and rear wheels. The truck is equipped with Futaba radio gear, a Novak 610 ESC, Stage III 1400 matched cells and a Trinity Point Blank Outlaw stock motor. Great job, John.

KILLER CLIMBER

This hill-climbing RC10GT comes from Trey Bosard of Humble, TX. This beast sports a custom Dynamite TNT engine, full ball bearings, a lightweight aluminum fly-wheel and an MIP clutch, and it's controlled by a Futaba radio system. Trey plans to upgrade his GT with a diff rebuild kit and a 360 Stinger. He also tells us that it took him a while to lay down the fade on the paint job, but he finally got it.



"Readers' Rides" is our way of recognizing the unique, innovative—and sometimes bizarre!—vehicles that our readers have created. Send us a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, R/C Car Action, 251 Danbury Rd., Wilton, CT 06897. If we choose your photo, you'll receive a 6-month subscription to Car Action, or an extension of your existing subscription. You'll also be eligible for the fifth annual "Reader's Ride of the Year Contest" in the fall of 1996. Write your address and phone number on your letter and on the back of each photo you send, in case we need to contact you.



RENALDI'S RIDE

This Tamiya Calsonic Nissan Skyline GTR comes from Renaldi Hutasoit of Portland, OR. This hot sedan features a TA02 chassis and the following modifications: adjustable front camber, aluminum hubs, a one-way diff, aftermarket springs and a rear sway bar. A Futaba Magnum AM radio sends the signal to a Novak Hammer Pro, which controls a Trinity Dirtinator 12-turn triple. Renaldi says his parking-lot killer placed first in sedan class and ran the fastest lap time of the day at the last local race.

In search of fun
and glory, 'cause
life's too short
to be a sheep • by Chris Chianelli

INSIDE scoop



Body Beautiful

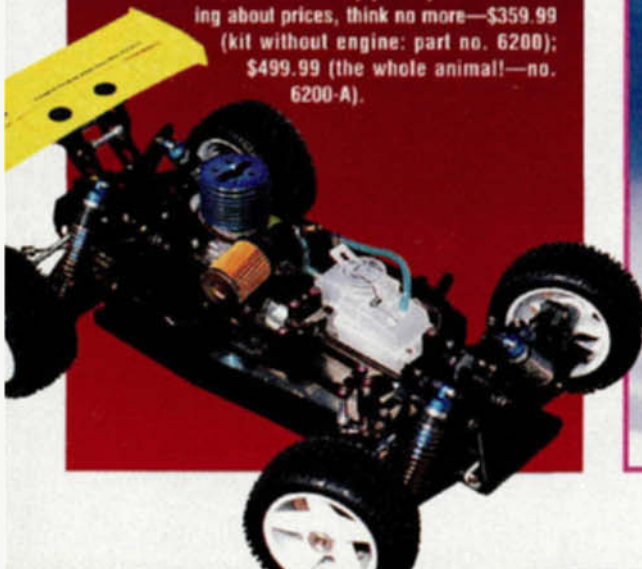
Bolink has just added this narrow, '96 Monte Carlo body to its extensive 1/10-scale-body line, and it's *sleeeeeek!* It's designed to sit low for improved aerodynamics, and its molded roof rails allow consistent tracking on large banked ovals. It will fit most narrow superspeedway chassis, such as the Bolink LTO XL, the Associated RC10L SS and the Trinity EV10ss; and it won't cost you and arm and a leg—just \$19.95. Just ask for part no. BL-2274, and tell 'em we sent you!



by
Bolink

Put a Tiger in Your Tank?

Thunder Tiger leaps into the growling 1/8-scale gas arena with its hot new Mirage, which was designed to battle the baddest beasts without mauling your piggy bank in the process. The Mirage is loaded—three differentials; an aluminum center diff housing with internal planetary gears and a steel main gear; dual disk brakes; locknut-secured hinge pins; sealed radio box; 125cc flip-top fuel tank; molded chassis side guards; turnbuckle tie rods; aluminum oil-filled, coil-over shocks; adjustable, dual-element rear wing; and a clear polycarbonate body. Buy the Mirage complete with a powerful Pro 21B-R(P) engine, exhaust manifold, air cleaner and tuned pipe, or get yourself the kit and add your own powerplant, air filter, manifold and pipe. If you're wondering about prices, think no more—\$359.99 (kit without engine; part no. 6200); \$499.99 (the whole animal!—no. 6200-A).



Check out these really trick Pro Wrenches. These hot-looking, easy-to-hold, purple-anodized aluminum wrenches have a bigger handle and feature a full-length drill-blank tip and a replaceable tip. For \$12.50, Trinity also offers a Dual Sided Pro Wrench that comes with one tip that's available in a choice of sizes: .035, .050, .063, .093 (fits 4/40 screws, a metric pinion wrench for Tamiya and Kyosho, and a 2.5mm tip for motor screws). Replacement tips are listed at \$6.99. For more info, contact Trinity at 1901 E. Linden Ave. #8, Linden, NJ 07036; (908) 862-1705; fax (908) 862-6875.

**New tricks
from Trinity**

INSIDE scoop

SUPER-DELUXE **SPEED KING**

Flash! This Subaru 360 Super Deluxe has just broken the track land speed record at Rancho Dominguez Velodrome; it topped out at **101mph**. I'll have more info next month on this world speed upset and on a bridge for sale—cheap, very cheap!



Tackling That

Tiny

Task

Dremel has always found new ways to help modelers tackle those difficult, tedious, tiny tasks. The new 1550 Versa-Tip Plus multi-purpose tool is an example of just such an aid. The Versa-Tip comes with five, interchangeable tips that can be used for soldering and hot-knife cutting. Held like a pencil, the tool has a short shaft and a grooved handle that enable the user to maintain excellent control of the tip for high-precision micro-projects. The tool features a high-efficiency, 30W, bronze-core heating element that reaches 1,050 degrees Fahrenheit at the tip. The 1550 Versa-Tip includes: general-purpose tip, fine-cutting tip, script tip, soldering tip, hot-knife tip for cutting plastic, plastic vial for tip storage and tool stand to protect work surfaces. For more information, contact Dremel, P.O. Box 1468, Racine, WI 53406-1468; (414) 554-1390; fax (414) 554-7654.



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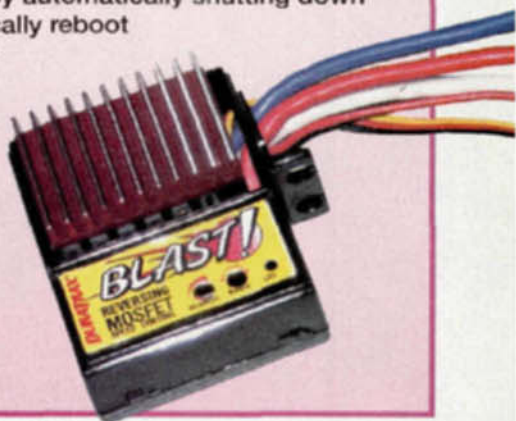
Pomona, CA—the RC10GT sweeps the NORRCA Nats. At the 1995 NORRCA Gas Truck Nationals, held at the Ranch Pit Stop racetrack, the Associated RC10GT made an incredibly strong showing by TQ'ing and taking first, second, third, fifth, sev-

enth, eighth and ninth spots. Mark Pavidis (center) TQ'd and won the Gas event by two laps! "Mr. Getting Better All The Time," Austin Dvorak (right) took second, and Vince Stolo was a close third. All three drivers used Pro-Line tires and O.S. Max engines.



2-Way Smooth

DuraTrax introduces the new reversing Blast electronic speed control that has smooth proportional response in both forward and reverse modes—no more jerky starts in either direction. The DuraTrax Blast handles the power of 5 to 7 cells, and that makes it ideal for virtually any 1/10-scale car or truck. Solid-state MOSFETs included within the design lower "on" resistance and thereby extend run times and improve efficiency and power transfer. The solid-state circuitry also provides two levels of protection. Thermal-sensing circuitry prevents heat damage by automatically shutting down the Blast, which will automatically reboot itself when temperatures have dropped to safe levels. A glowing LED changes color to simplify high-speed and neutral dial-in. The Blast comes with removable heat sink, ThermoBed, capacitors, screwdriver, instructions and 120-day warranty protection, and it retails for only \$89.99!



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Team Kinwald brings you new ways to go fast. The BuggyWald™ off-road modified motor delivers heavyweight performance on a lightweight budget. And, Kinwald "Hard Ones"™ hardened steel pinions turn out precision and long life like no other.

"If my first Modified Motors had been this fast, I'd been World Champion a lot sooner."

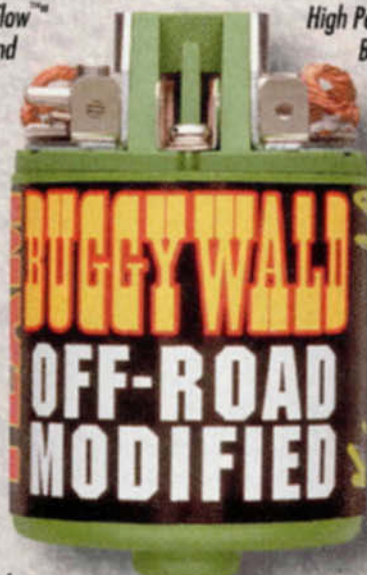
—Brian Kinwald
Current IFMAR World Champion



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Can

High Performance
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Springs

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Double
Machine
Wound
"Short
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WHAT'S new

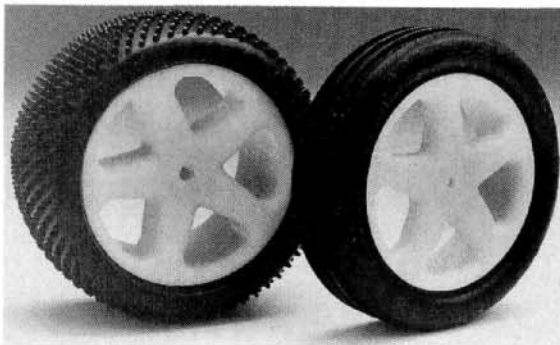
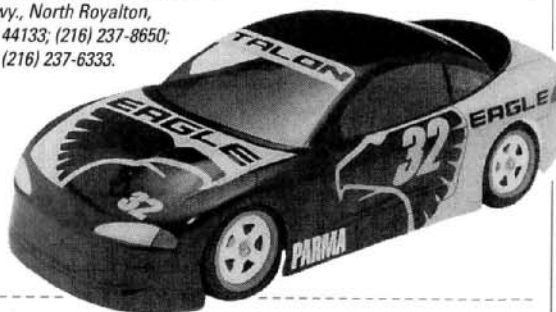
PARMA

Eagle Talon® Clear Body and Wing

Designed to fit the 1/10-scale Tamiya, Yokomo and Kyosho 4WD chassis, this body takes advantage of full-scale race styling and aerodynamics. Add the included spoiler for more downforce.

Part no.—10217; price—\$21.

Parma Intl. Inc., 13927 Progress Pkwy., North Royalton, OH 44133; (216) 237-8650; fax (216) 237-6333.

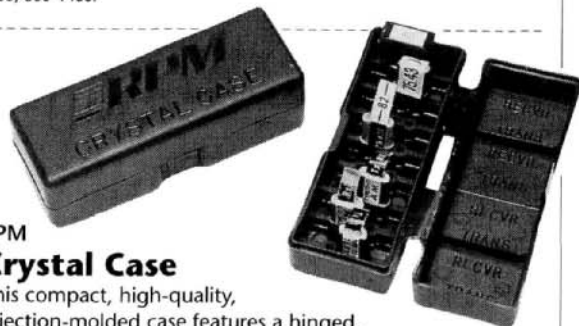


TEAM LOSI

5-Spoke Wheels

These stylish, new, computer-designed wheels look great and maintain their stiffness and durability during use. Available in natural and in bright yellow, the 2.2-inch rears will accept all popular 2.2- and 2.15-inch rear tires, and the 2.1-inch fronts will accept all popular 2WD front tires. **Part nos.—A-7040 (front, natural), A-7041 (front, yellow), A-7140 (rear, natural), A-7141 (rear, yellow); price—\$6 each.**

Team Losi, 13848 Magnolia Ave., Chino, CA 91710; (909) 465-9400; fax (909) 590-1496.



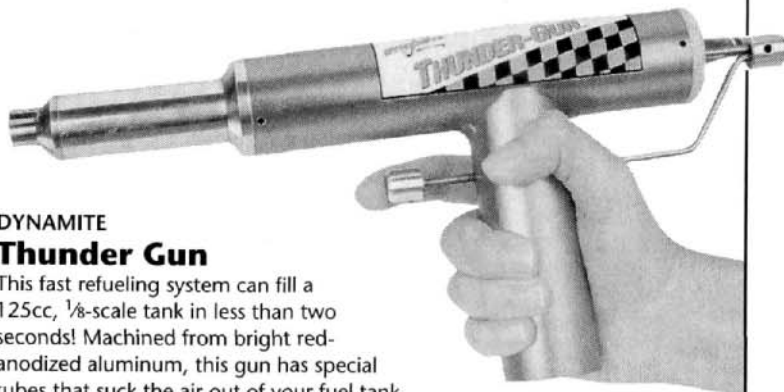
RPM

Crystal Case

This compact, high-quality, injection-molded case features a hinged, snap-shut lid and is designed to store up to four pairs of radio crystals. To keep the pins straight, clean and protected, the crystals plug into small, labeled holes in the bottom of the case.

Part no.—8039; price—\$7.95.

RPM, 14978 Sierra Bonita Ln., Chino, CA 91710; (909) 393-0366; fax (909) 393-0465.



DYNAMITE

Thunder Gun

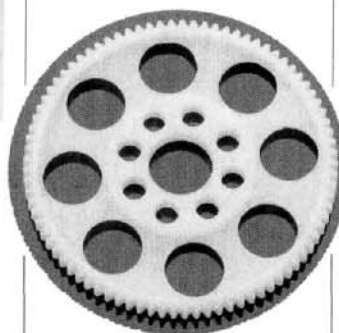
This fast refueling system can fill a 125cc, 1/8-scale tank in less than two seconds! Machined from bright red-anodized aluminum, this gun has special tubes that suck the air out of your fuel tank while you're fueling. When the tank is full, the fuel flow automatically shuts off.

Part no.—DYN2003; price—\$59.95.

Dynamite; distributed by Horizon Hobby Distributors, 4105 Fieldstone Rd., Champaign, IL 61821; (217) 355-9511; fax (217) 355-8734.

ROBINSON RACING PRODUCTS

48-Pitch Stealth Silencer Spur Gears



These profiled spur gears are 50 percent thinner and 40 percent lighter than stock gears, and that

means lower rotating mass and better performance. Made with diamond-ground master tools, these precise gears improve acceleration and top-end performance. They don't contain any abrasive glass that can cause excessive pinion wear, and they're available with 96 to 125 teeth.

Part nos.—1796 to 1825;

price—\$6.50.

Robinson Racing Products, 4968 Meadow View Dr., Mariposa, CA 95338; (209) 966-2465; fax (209) 966-5937.

TRINITY

Buggy Grip

This new tire-traction spray is used to soften and condition off-road tires as it makes them stickier. It's packaged in a convenient spray bottle; just apply, and let air-dry. The more you apply, the softer the tire becomes.

Part no.—RC6052;

price—\$6.99.

Trinity Products Inc., 1901 E. Linden Ave. #8, Linden, NJ 07036; (908) 862-1705; fax (908) 862-6875.



Descriptions of the products shown here were taken from manufacturer and/or advertising agency press releases. The information given does not constitute an endorsement by Radio Control Car Action or guarantee product performance or safety. When contacting a manufacturer about any product described here, be sure to say you read about it in Radio Control Car Action. Manufacturers! To have your products mentioned here, send press releases to R/C Car Action, What's New, 251 Danbury Rd., Wilton, CT 06897.



TRUBLE SHOOTING

by George M. Gonzalez

NITRO DREAMING

I'm thinking of buying an Associated RC10GT, and I have a few questions. Do gas trucks go faster than electric trucks? Is it really worth the money to buy a gas truck? I'm confused about all the different O.S. engines. Which engine is best for backyard driving and occasional racing? Are there any other brands I should consider? Does an engine without a recoil starter go faster? Is it a hassle to start an engine without a recoil starter? Do I need a super

radio to control an engine-powered car, or will an Airtronics Rival be OK? How much more maintenance does a gas car require than an electric?
BILL CLARK
Escondido, CA

You've asked a lot of questions, Bill, so I'll keep my answers short.

- Gas trucks have more power than electric trucks, but they're not always faster.
- The realistic sound, the smell of nitro and the virtually limitless run times make gas trucks a good investment.
- O.S. makes the CZ-R with and without a recoil starter. They also make the CZ-RX, which is the same as the CZ-R pull-start, except the crankshaft is pre-cut to fit the RC10GT. O.S. also makes the CZ-Z, which has 30 percent more power than the CZ-R, but it isn't available with a recoil starter. I recommend that you install the CZ-R or the CZ-RX as your first engine. They have a tremendous

amount of power, and they're very reliable. The CZ-Z should be used by more experienced racers.

- Yes, there are several other brands of engines you could install in a GT. Thunder Tiger, OFNA, Dynamite and Yokomo all make .12-size powerplants that bolt into the GT chassis. In addition, HPI makes a .15-size powerplant that will drop into a GT chassis, but it's definitely not for the faint-hearted.
- In theory, engines without recoil starters are faster than those equipped with recoil starters. The difference in performance, however, isn't that significant. If you're looking for maximum performance, install a non-pull-start engine. If you're looking for maximum convenience, go with a pull-start engine.
- No, it isn't a hassle to start an engine without a recoil starter. All it takes is one or two bumps against the engine's flywheel with a hand-held starter, and you're off and running.
- Your Airtronics Rival will



TRIMMING THE TRAXXAS

I own a Traxxas LS-II and run it with all Hitec electronics, except for a Novak M-5 ESC. The steering veers all the way to the right, and I have to set the steering trim all the way to the left. What could be causing this? Would really low controller batteries have anything to do with this? Thanks for your help.
JIM W. MILAN
Redondo Beach, CA

Hey, Jim, make sure you're using the correct servo-saver for your Hitec servo. If it isn't the correct one, it might be

too loose, and it won't work properly. If it's the right servo-saver, then start by installing new batteries in your radio (it's impossible to check your radio equipment with dead batteries). If the steering still pulls to the right, remove the servo horn or servo-saver from your steering servo. Next, adjust the steering trim so it's in the neutral position. Re-install the servo horn or servo-saver on the steering servo, and make sure it's centered. If you're using Kimbrough's large servo-saver, make sure the bot-

tom of the servo-saver isn't scraping on the chassis, which could cause the servo-saver to bind up. If the bottom of the servo-saver is scraping against the chassis, add some washers under the servo mounts to raise the servo off the chassis.

Finally, adjust the steering tie rods until the front tires point straight ahead. If the vehicle continues to veer right, try another servo or another receiver. Your local hobby shop might be able to help you by checking out your equipment.



If you have technical problem that your hobby shop or racing friends can't resolve, give us a shout at Radio Control Car Action, and we'll see if we can chase down an answer for you.

Questions should be of a technical nature and should be addressed to Troubleshooting, Radio Control Car Action, 251 Danbury Road, Wilton CT 06897. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.



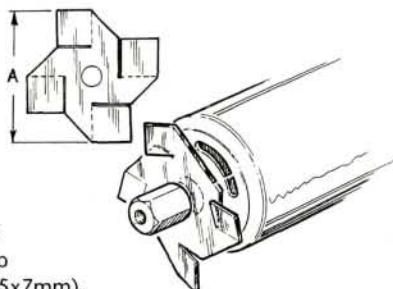
PIT TIPS

by Jim Newman

ENDBELL COOLER

This scrap Lexan fan blows air over the endbell and casing. It was made for the Kyosho Lazer, but it will probably work for others. Dimension "A" is $\frac{7}{8}$ inch (22mm), and the bent-up blades are $\frac{3}{16} \times \frac{7}{32}$ inch (5x7mm).

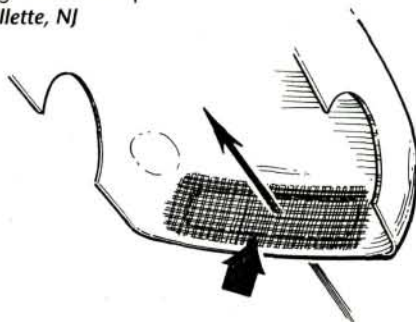
Melvin Fung, Kuala Lumpur, Malaysia



STOCKER AIR COOLING

Make the radiator grill functional by cutting it away and gluing screen in its place.

Jack Faenza, Gillette, NJ



COMM-TRUING RECORD

Stick a piece of tape onto your motor; on the tape, record how often you true your commutator. Each dot represents a pack discharge, and each slash represents a comm-truing cut. How often you true will be determined by experience with that motor.

Manuel Vital, Lisboa, Portugal



TIRE-COMPOUND CODING

Code your road-racing tires with colored dots. For example: red for soft, yellow for medium, green for hard. Make a chart to stick inside your pit box.

Thomas Chui, Calgary, Alberta, Canada



LIGHT TRANSMITTER

To guard against short circuits, use Velcro®-brand fasteners to attach your transmitter Ni-Cds to your belt, or put them in a small wooden or plastic box that's attached to your belt. Use a Deans plug and cable to connect them. This makes the transmitter lighter, reduces your fatigue during long races and allows you to use higher-capacity, heavier Ni-Cds.

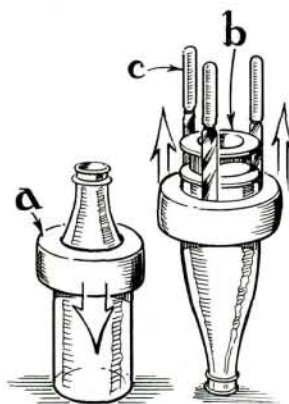
Barry Yin, Carlton, Victoria, Australia



$\frac{1}{8}$ -SCALE TIRES ON OFF-ROAD RIMS

Soak the tire (a) in dishwashing soap to lubricate it, and then force it over a bottle. Invert the bottle and place the rim (b) on its base; with an extra pair of hands and the aid some flat spatulas (c), you can slip the tire up and onto the rim.

George Kotsizas, Athens, Greece



Radio Control Car Action will give a one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 251 Danbury Rd., Wilton, CT 06897-3035. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one, nor can we return unused material.



GETTING STARTED

by Brian Leslie

Building Kits

ASSEMBLING your R/C car is an important part of getting to know how it works. The assembly process is great experience and will be important when it's time to perform maintenance and repairs. For me, the assembly part of R/C is half the fun of being involved with this great hobby. With each kit I put together, I learn



Take time to carefully read your instruction manual before you start to build your car or truck. Building and setup tips help you to get your vehicle dialed-in properly.

something new that helps me put the next kit together even better. With that in mind, I thought I would share some very simple, but important, tips on R/C kit building.

- **Instruction manuals.** The most important thing to do before, during and even after building your car is to read the entire assembly manual. Normally, the first two pages of the instructions list which tools you will need, how the parts bags are numbered and what the symbols mean. Do yourself a favor, and read the whole instruction booklet thoroughly. Don't just try to build according to the pictures; the text that accompa-

nies the pictures often includes helpful hints—warnings, setup tips and the like. The key is to read and look at everything before each assembly step.

- **Work area.** After you have gone through the instruction manual and gathered all the tools you'll need for assembly, find yourself a clean, large area on which to spread out all the parts and instructions. Don't work over a high-pile carpet, though; it's no fun making a trip to the hobby store because of a lost part. The area should also be as brightly lit as possible and in a place that won't be disturbed when you aren't working on the kit. A card table in a spare room or basement works well, as does a workbench with a solid countertop. High-traffic areas such as the kitchen and living room are definitely not recommended.

To prevent parts from rolling off the work area and onto the floor, place a paper towel over the work surface to catch dropped screws, bearings, or whatever tiny parts might slip out of your hand.

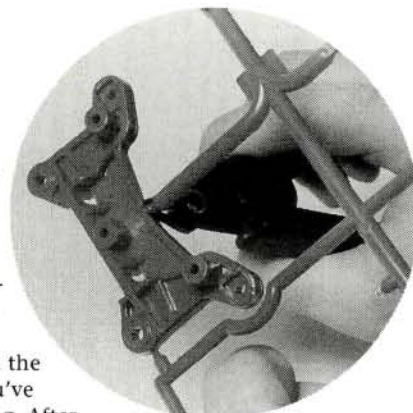


This, on the other hand, is a good example of how your work area should look. Notice that everything is neatly organized and easily accessible.

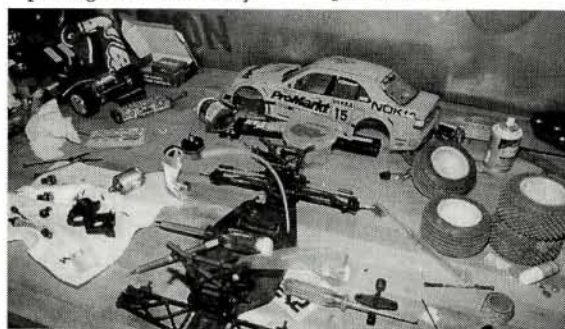
To further organize your work area, use bowls, plates, or other containers with separate compartments to hold the parts after you've opened the bag. After you've dumped the parts into your container, tape the number or letter of the parts bag to the container for reference. This will save time and decrease the possibility of misplacing a part.

- **Tool tip.** Take your time, and do it right the first time, or you may find yourself doing it over again—or worse, replacing parts that were put together incorrectly.

For tightening screws, I recommend that you use hand tools, not power tools. It's very easy to strip out nylon and plastic mounts with power tools.



When you remove parts from the plastic trees that are included in most kits, take time to remove the leftover flashing from the parts after you've removed them.



Here's an example of a poorly planned "R/C car work area." As you can see, this area desperately needs to be organized better.

- **Flashing.** Use a pair of plastic cutting snips or an X-Acto knife to cut parts off the parts trees. Then use the X-Acto to trim the excess flashing off the part; be careful not to cut into the body of the piece. Leaving flashing on key components can affect the car's performance and make it look hack.

Proper removal of flashing and careful



GETTING STARTED

assembly are especially important when it's time to build the suspension and shocks. Flashing on the shock piston severely hampers the shock's damping action.

• **Reaming.** Occasionally, you'll need to ream out suspension arms and mounts. For suspensions to work correctly, they must move freely and without slop. As with everything else, use a hand reamer tool (not a drill) to ever-so-slightly enlarge the A-arm mounting hole. Many instruction manuals indicate which size of reamer to use. If you do not have one of the suggested size, I suggest that you either get one, or leave the holes the way they are and let them become enlarged as they are broken in. If you remove too much material, the suspension arms will be sloppy, and that will adversely affect the vehicle's handling.

• **Gearboxes and differentials.** My best advice for building gearboxes (especially differentials) is to follow the instructions to the letter. Use a high-quality motor spray to clean all the diff parts

before assembly begins (make sure that the spray won't damage any plastic parts!). This will remove any machining oils that were used at the factory to manufacture the parts. Build the diff over a light-colored towel, especially if it's a ball diff, in which the diff balls and washers are very small and precise. If you lose even one diff ball, you'll need to buy a completely new set because the balls are matched to one another in the closest of tolerances. Before you install the diff rings, make sure your hands are clean. Oil on the surface of the diff rings can cause the diff to slip.

One of the biggest causes of improper diff action is too much diff lube; a dab on each ball is enough. You do not have to smear the lube all over the diff area. The outer side of the diff rings must be perfectly dry and clean.

• **Painting.** Paint in a well-ventilated area far away from items that you don't want to be the same color as your R/C vehicle's body. If you paint outside, make sure there isn't a lot of humidity. Paint mist is very harmful to the lungs

and tends to get all over everything as it is carried through the air, so never use spray paint without wearing adequate breathing protection.

Before applying a single drop of paint to the inside of the body, wash your hands, then wash the body in warm, soapy water (dish detergent works well). This will remove any mold-release residue left over after the manufacturing process. Then make sure the body is perfectly dry. Use a lint-free towel for this job—not paper towels, because they leave fibers behind that will show up bigtime when the inside of the body has been painted. There are a few lint-free paper towels on the market now, so do a little research at your local grocery store.

A dish towel works well for drying the body. While it dries, do not touch the inside of it with any part of your hands. Hands can leave oily prints to which paint will not stick.

When you mask off areas that won't be painted (such as windshields), only use trim-type or masking tape, or tape made for this process. Failure to do so will result

in tape that won't come off after painting, or tape that will come off during painting. Check out Pactra's* long list of trim tape supplies. They have every width imaginable to suit your needs.

Pactra also is a great supplier of paints for R/C bodies. If you use any other paint that is not for your specific body (most are Lexan, but some are polycarbonate shells; check your instruction manual), after the first mishap, you'll end up with a pile of paint chips and a clear body once again. After painting the inside of the body, let it dry for at least one day, and back it up with a solid, white paint. This will brighten the first color you put on and protect it from accidents, oils and motor cleaners.

By following these basic hints, you can increase your fun significantly and decrease your frustration twofold. The best way to achieve the ultimate performance is to assemble the kit in the way the instructions tell you to.

* Addresses are listed alphabetically in the Index of Manufacturers on page 176. ■



Black Diamond—

- Alloy radio tray
- Alloy front bulkheads
- Alloy top front A-arms
- Quick-change front wheels
- Black-anodized alloy parts

Apollo Vari & 1/8 2WD—

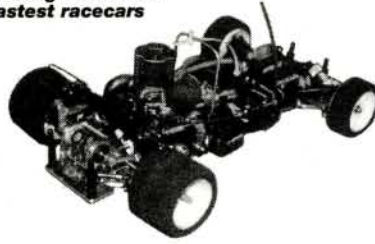
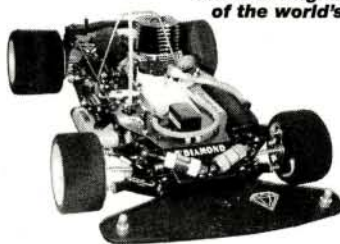
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- Adjustable front camber

Send \$2.00 for catalog

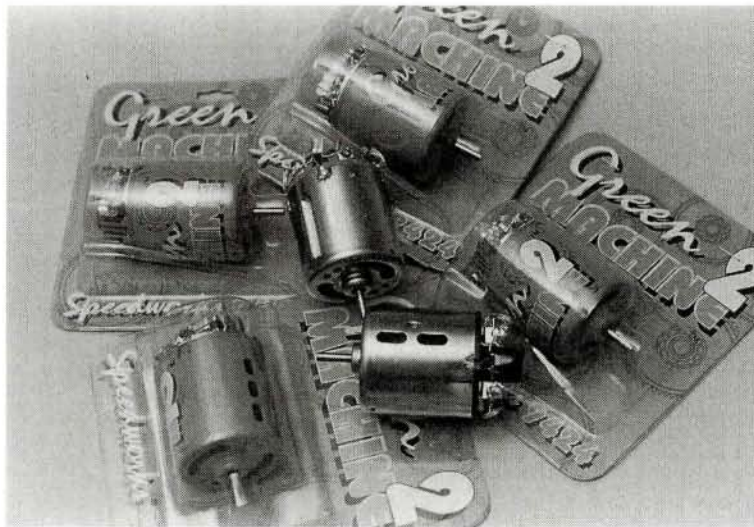


Secrets of Stock Motor Tuning Revealed

HAVE YOU EVER wondered why some stock motors are faster than others?—why certain stock-class racers turn lap times faster than many of the modified-class guys? Do you know

tips; you may even have used some of them.

Many of the methods used to tune stock motors are intended to bring the motors as close as possible to their original design specification. This



Lotsa motors, lotsa bench time and real answers.

what you're paying for—or are supposed to be paying for—when you lay out additional cash for a stock motor that has been tuned by an aftermarket company? We've all tried to improve the performance of stock motors at some point in our R/C lifetimes, but do you know which techniques are really worth your time and investment?

Read on, my friend, because you're about to discover some of the secrets of tuning your stock motor to achieve its maximum power potential. Those who have been around the hobby for a long time have probably heard of most of these

process, called "blueprinting," is used by professional speed demons and motor builders in many spec-class-type motor sports—from motorcycles to showroom stock-class road racers. Every part of an electric motor is built to a certain specification, plus or minus certain manufacturing tolerances. Stack up all of those tolerance differences, and you'll find that some motors are just naturally more "in spec" than others. Some of those tolerances can be corrected or compensated for; others can't be changed. That's why really fast stock-class guys often purchase a dozen or more motors, dyno them

all and actually race only one or two. At regional or national handout-motor races, they'll buy the maximum number allowed (usually no more than three) right up front. They can make all of them as fast as possible, but the really super ones stay in the box until that critical heat or Main.

Even the most experienced motor tuners will find something of interest here, especially the quantitative test data. The information presented here will help newcomers understand their vehicles and drive trains. Some of these techniques require specialized tools, lubricants and chemicals. You and your buddies may decide to get together and share the cost of the more expensive tools. A stock motor comm lathe may be your most expensive investment. If it has a diamond cutting bit, you'll spend between \$200 and \$400—something to consider if you're a serious stock-class racer, although most people in the hobby would consider it overkill. Everything else mentioned here can be bought or made for a couple of bucks.

THE SECRET UNDERGROUND LABORATORY

I used the following equipment to assemble the test data found in this article:

- Lavco* Pro Dyno with power adapter and TPS 45A power supply;
- Twister* Stock Pro commutator lathe with a diamond bit;
- Tecnacraft* waffle-brush face cutter (fine) mounted in an old modified can;
- Class Recreational Products* Spring Thing;
- S&K Products* Exact 180 (brush-hood

alignment-tool);

- Five Trinity* Speedworks Green Machine 2 motors;
- Race Prep* Purple Haze, Trinity Slot Machine 2 and Reedy* Mach 1 motors (one each).

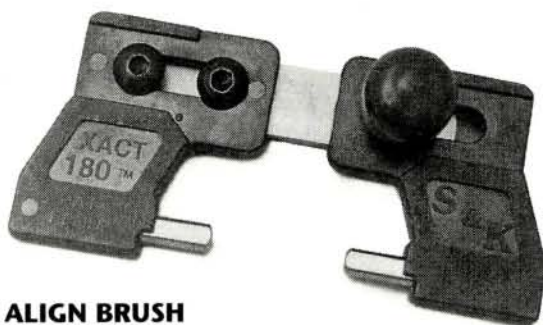
Each motor was dyno'd right out of the package (no preparation was necessary). The Green Machine 2 motors have an excellent reputation and for good reason: they were pretty fast right out of the box, and very, very consistent (within 100rpm and five power numbers at every setting across the board). The dyno performance of the other motors varied considerably, but each one produced a consistent reading for each of the three test runs.

Then every motor was taken through the steps you'll read about later on. After every step, they were dyno'd again three times and allowed to cool for 20 minutes between runs to ensure consistent readings. The numbers you find at the end of each tuning step represent the average gain realized by each motor, regardless of manufacturer or design. That's eight motors, seven steps and three runs every time, for a total of 168 dyno runs plus the base-line runs. Talk about a long evening in the lab! The time I spent with each motor trying to get the proper brush and spring combination paid off.

On average, these motors picked up 1,600 to 1,800rpm when they received the whole treatment, as well as 20 to 35 power numbers, depending on the dyno load. The heavier the load, the greater the power gain. Is it worth it? That depends on how serious you are about your racing. You decide.



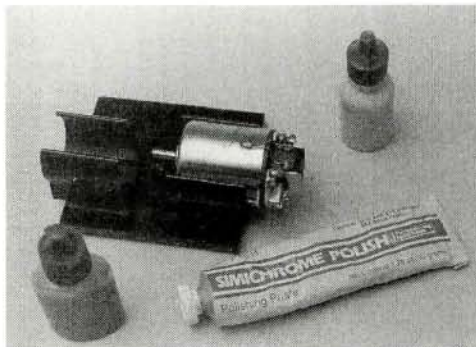
This S&K Exact 180 brush-hood tool works on both upright and laydown brush hoods.



Step 1 ALIGN BRUSH HOODS

You'll need a brush-hood alignment tool, such as the one made by S&K Products. Loosen the brush-hood screws, and insert each leg of the tool, being careful not to hit the face of the commutator (if you dent it, performance will be reduced). Lock the alignment tool at 180 degrees, and tighten the brush-hood screws to retain this setting. The brushes are now exactly 180 degrees apart, which is the way the motor was designed to run. This isn't necessary with some of the more modern motors, like the Epic laydown motors, because the heat sinks and the brush hoods are indexed to the endbell molding to lock down at 180 degrees. Race Prep and Yokomo* motors, on the other hand, can benefit greatly from this sort of attention. On those motors, this step is worth two power points and 50rpm at every load setting. That isn't a lot, but it also says something about how close to spec stock motors are when they leave the factory.

Step 2 POLISH AND OIL BUSHINGS



Use some "secret sauce" or Brasso and a slave motor jig to polish the bushings on your stock motor.

You can only do this with a new motor, because once the bushings have been heavily oiled and heated under load, the polish won't do anything (it will just slide off the bronze-bushing material). Mix up some "secret sauce" (check out "R/C Doctor" in the October '93 issue) using three parts blue Trinity comm drops to one part Happich Simichrome metal polish (available at auto-parts stores). Put two or three drops on each bushing face, and place the motor in a jig (BRP* makes a nice one) that's connected to a slave motor that's wired to turn in the opposite (clockwise) direction. Run the slave motor for at least 10 minutes, or until the "secret sauce" turns black and looks cruddy. Brasso, or a similar metal polish, can also be used to accomplish the same task. Flush out the bushings with plenty of motor spray, and be very careful to eliminate every trace of the polish from the motor. You don't want grunge or grit inside the can. After the motor spray has dried, oil the bushings well with a high-quality, low-viscosity lubricant, e.g., Mobil One 5WT, air-tool oil or CRC*, Aero-Car*, Bolink*, or Trinity oil. This is a big step, and it yields five to seven power points and 200 to 300rpm, especially at the heavier load settings on the dyno. Cheap, and definitely worth it. I do this with *all* of my stock motors before they're ever run. I think it makes the bushing last much, much longer.

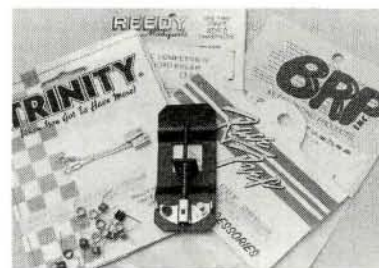
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Use a high-quality, low-viscosity oil to keep the bushings feeling like bearings for a long time.

Step 3

SELECT BRUSHES AND SPRINGS



It's worth it to invest in a selection of motor brushes and brush springs. **Try several brush and spring combos until you hit the right formula.**

If you run a lot of stock motors, most of them are probably laydown designs, which reduce the number of brushes you need. Start with a selection of full-face soft and hard brushes. With some simple hand tools, such as a high-speed rotary grinder (or Dremel) and a small file, you can duplicate many of the fancy cuts used by the pros. Also, find out what the fast folks are running at the track. Typically, you'll find that there's a common brush type (silvers, softs, or hards) or cut (cavity, H-cut, or timed) that's successful on that particular track surface.

Don't expect to find the best combination the first time. If you're in the ballpark on brush composition, you'll find that you're most of the way there. Heavy springs generally reduce rpm and increase power numbers; lighter springs are better for high speed in low-power situations, such as 1/12-scale, 8-minute, low-amp-draw racing.

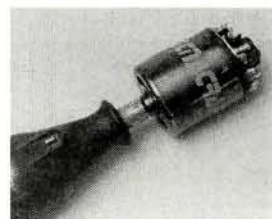
Proper brush and spring selection is one of the best ways to increase power on a handout, or an OEM-type motor. That's because most of them come with soft brushes and springs that give them long life at the expense of optimum power. The correct brush and spring combo can easily give you another 700rpm and 10 power numbers at virtually all dyno readings. Like polishing the bushings, this is major result/minimum investment stuff! It's also one of the few things you can legally do to a handout stock motor at a ROAR regional or national event where comm cutting is illegal.

Step 4 BREAK-IN BRUSHES

You can't just slap those new brushes and springs onto your stocker, however. Before you can jump on the track, you have to ensure that the curve on the brush face matches the arc of the commutator as closely as possible.

Brushes are now usually molded with more of a curve on the brush face, so they're much closer to matching the comm as they come out of the package. It's much easier and faster to make them just right, and there are a couple of tools that will get you almost there without producing any comm wear at all. They're called brush cutters and brush break-in tools, and companies, such as Race Tech*, manufacture them; Tecnacraft also makes a fine-tooth, waffle brush-face cutter that fits into an old modified motor can that accomplishes the same thing. These cutters all contain abrasive devices that are the same circumference as a motor commutator. Just plunk in your brushes and springs, hook the cutter up to a rotary tool or a Dremel at medium speed (the Race Tech cutter uses an old stock motor and a 4-cell battery pack) and, in a couple of seconds, your brushes will be almost ready to run! Now, put them into your stock motor, run it for a couple of minutes, and you'll find that the brushes are set perfectly.

What's the value? How about a solid 200rpm and 7 power points? That much additional power will scoot you past the guy who didn't break in his brushes properly. You'll have more speed going down the long straight or out of that tight corner that requires a little more grunt. That's the difference between the A-Main and the C-Main.



Break in those new brushes with a brush cutter, like this one from Tecnacraft.

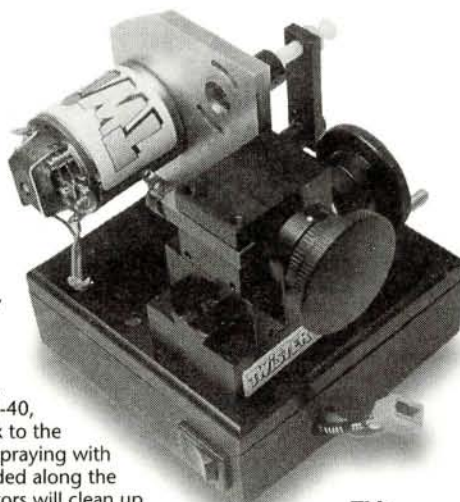
Step 5 TRUE COMM

This is another blueprinting tip, and it works really well. To obtain maximum power, the surface of the motor's commutator must be as smooth, round and square to the brush hood as possible. At 20,000rpm, every little bump in the surface throws the brushes off the face of the comm, and that leads to a power loss. Truing your comm actually keeps your motor going faster for longer, because it prevents the damage (like pitted or chipped brushes) caused by an out-of-round comm. Brushes that are thrown off the comm face can create divots when they come back down again. Do that 10,000 or 20,000 times per minute, and you'll get more than a little motor wear! With the retail price of stock motors now at \$40, it makes sense to take better care of your motor. On the other hand, the price of a decent lathe is pretty steep (\$200 or more), so you might want to band together with your R/C buddies to buy one.

Remove both sets of brushes and springs and the brush hood hardware from at least one side of the motor. Use the proper-size wrench for the spring-post screw (Trinity and Wiha* make good tools for this). Mount the motor in the lathe fixture, and be careful not to strike the tip of the diamond bit. Secure the motor according to the directions for your unit. Carefully set up the drive motor and the belt pulley so that the comm won't move around in a horizontal plane while you cut (most lathes have some sort of stop screw for this). Align the tip of the bit so that it's in the middle of the brush path where most of the damage usually occurs. Then slowly draw the bit toward the comm. When the bit just starts to cut the comm, draw the tip back one notch on the knob, and move the tip all the way over to the winding side of the comm. Spray some WD-40 on the comm, extend the tip one notch to engage the commutator surface, and slowly feed the tip across the face of the comm. When copper dust builds up on the tip, spray it again with WD-40 (three to four times every feed). When you get to the endbell end of the comm, stop the lathe, and check

the comm surface to see if you need to make another pass. If you do, start up the drive motor, extend the tip another notch, spray with WD-40, and run it back to the winding end, spraying with WD-40 as needed along the way. Most motors will clean up quite nicely with one or two passes.

How much power do you pick up when you true the comm—even on a new motor? How about a solid 700 to 800rpm and 10 to 12 power points? That's a huge difference, and a dramatic improvement in power and rpm. True the comm every five to 10 runs, and those numbers will stay solid for much longer. For example, I tested an older GM2 that I had run all summer—off road, on road, on the parking lot in my sedan car (one of the toughest, hottest jobs for a stock motor) and indoor on the carpet with my F1 car. It had really slowed down, and the power numbers weren't where they used to be. Truing the comm and breaking in the brushes again yielded an increase of almost 20 power points across the board and an additional 1,000rpm. That brought a motor that had been used all season right back up to the kind of numbers I would expect to see from an almost new motor, within 10 power points and 1,000rpm. That's really a reborn motor!

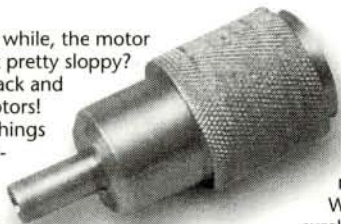


This Twister Prostock comm lathe does a wonderful job of keeping my stock motors like new for a long time.

Step 6 SET BUSHINGS FOR SLOP

Have you ever noticed that after a while, the motor shaft on stock motors tends to get pretty sloppy? You can actually move the shaft back and forth an 1/8 inch or so on some motors! That's because of wear on the bushings and spacers and because the bushings settle a little more fully into their sockets at each end of the shaft. It's easy to reduce the slack; you just need a single specialized tool and a little patience.

The bushing whacker you see here was made for me several years ago by Ron Lackey—a fellow racer and machinist. I'd be willing to bet that almost any machine shop could have one of these made easily and cheaply. It's a deep, 1/8-inch-diameter socket that the motor shaft fits into with a surrounding base that runs snugly up against the motor's bushing. Spin the motor, allow it to come to a complete stop, and then pull on the shaft end to find out which end has too much play. Place the bushing whacker over the end with the most play, and lightly tap it with a pair of pliers or a screwdriver handle. It doesn't take much force to move those bushings around to where they need to be. If you go too far and the motor starts to tighten or bind up, set the bushing back into the socket using a small screwdriver or a nail and the same pliers or screwdriver handle. This time, tap it on the shaft itself. With a little practice, you'll be able to set up your stock motors so that the bushings always feel like new. That keeps the arma-



You can have a machine shop make you a bushing whacker like this one pretty cheaply. Use it to remove motor-shaft end play.

ture in the center of the magnetic field and makes the motor more efficient.

What's it worth? Very little, really, in terms of short-term measurable power gain. The true value is in the additional motor life and the ability to mount the pinion precisely. You'll know that the pinion will stay in the center of the spur-gear face when your motor shaft is properly set up with minimal slop.

So, there you have it! Ten years' worth of stock-motor tuning secrets. Even if you don't run right out and buy a bunch of specialized tuning equipment and tools, this article should give you something to think about

when you're setting up, tuning, or maintaining your stock motors. Take a little extra care in the beginning, and you'll reap the rewards down the road!

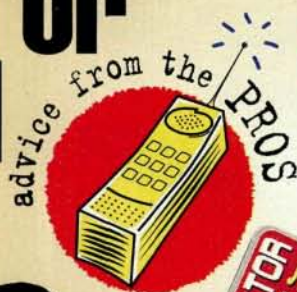
**Addresses are listed alphabetically in the Index of Manufacturers on page 176. ■*

TRINITY[®] Radio Control **CAR ACTION**

SWEEPSTAKES

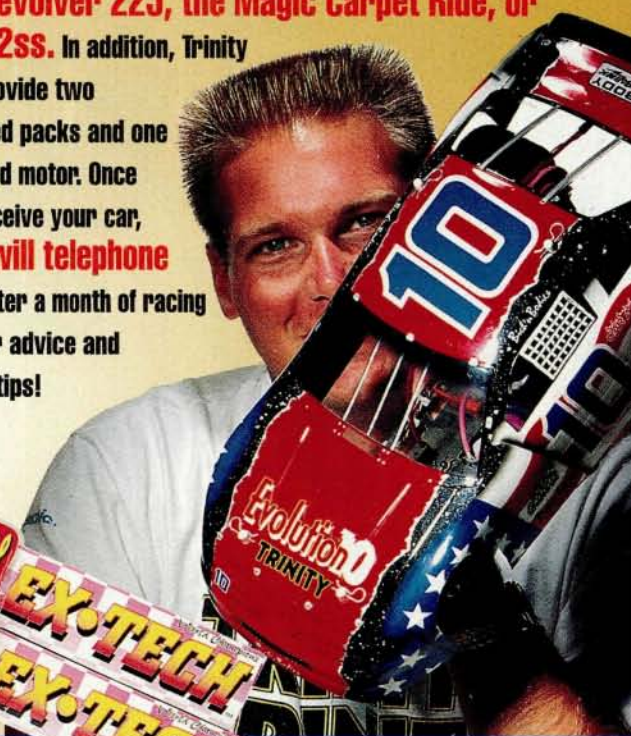
**GRAND
PRIZE**

**Your choice!
on-road or
off-road
PLUS free
advice
from the
pros**



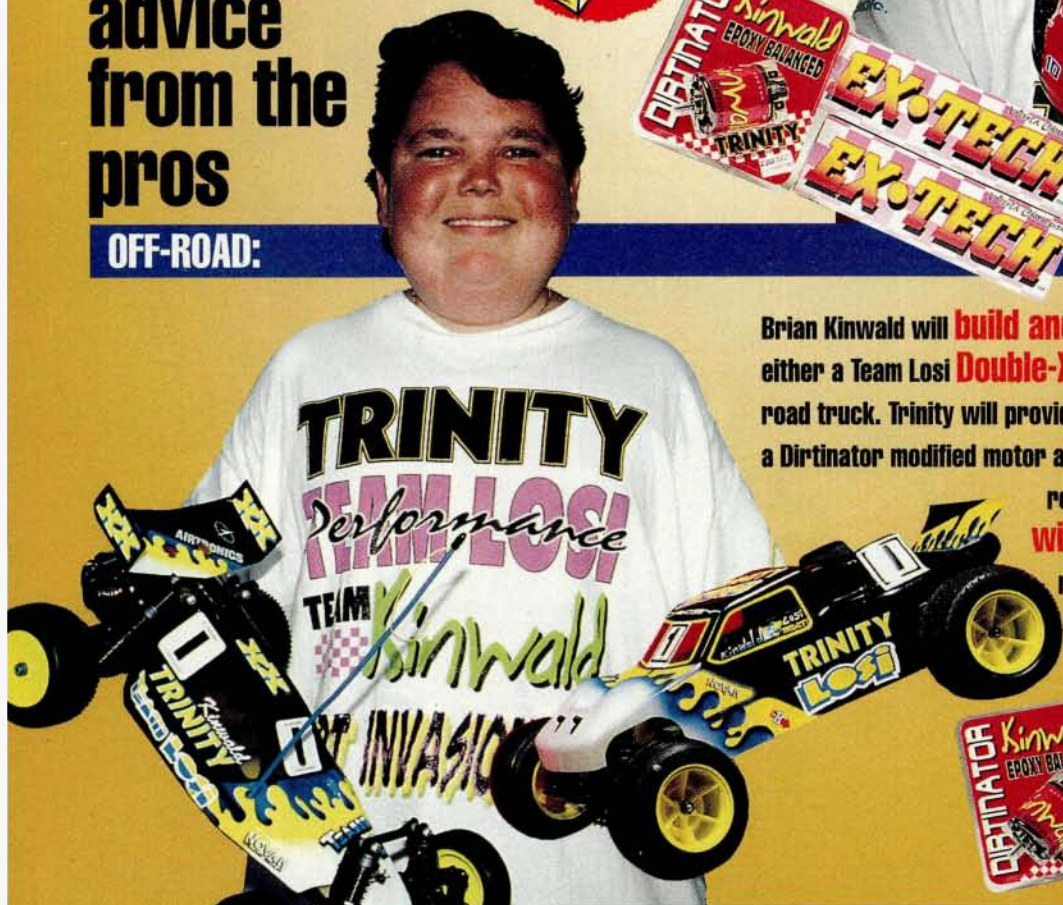
ON-ROAD:

Joel "Magic" Johnson will **build and autograph your choice** of one of the following cars: an EV10 or EV10ss, the Revolver 22J, the Magic Carpet Ride, or the 12ss. In addition, Trinity will provide two matched packs and one modified motor. Once you receive your car, **Joel will telephone you** after a month of racing to offer advice and tuning tips!



OFF-ROAD:

Brian Kinwald will **build and autograph your choice** of either a Team Losi Double-X buggy or a Double-XT off-road truck. Trinity will provide a 1700mAh pack, a 1400mAh pack, a Dirtinator modified motor and a Midnight stock motor. Once you receive your buggy or truck, **Brian will telephone you** after a month of racing to offer advice and tuning tips!



ES

The sweeps that gives you a choice!

OFFICIAL SWEEPSTAKES RULES:

1. To enter, complete and mail the Trinity/RADIO CONTROL CAR ACTION official entry form (enclosed in this magazine), or a reasonable facsimile. Be certain that your name and address are listed correctly.

NO PURCHASE NECESSARY.

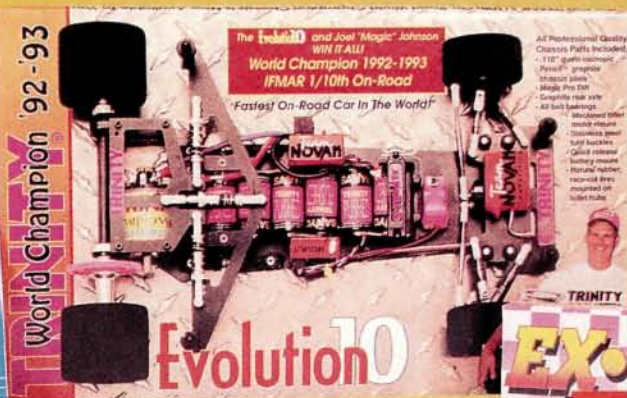
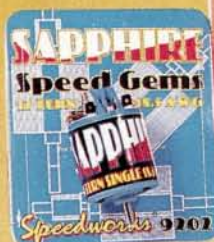
2. Entries are limited to one per person. All entries must be postmarked by March 31, 1996. All prizes will be awarded in April, 1996.

3. Winners will be selected in random drawings, and decisions will be final. Winners will be notified by mail. Any prizes returned as undeliverable will be awarded to alternate winners. The chances of winning will be determined by the total number of entries received.

4. Taxes on all prizes are the sole responsibility of the winners. No substitutions will be made for any prize offered.

5. The Sweepstakes is open to the public. Employees and stockholders of Air Age Publishing Inc., World Color Press and their families are ineligible. Sweepstakes is subject to all federal, state and local laws and regulations and is void wherever prohibited by law.

For a complete list of winners, send a self-addressed, stamped envelope to: Trinity/RADIO CONTROL CAR ACTION Sweepstakes Winners, 251 Danbury Road, Wilton, CT 06897.



The winner also gets the **freedom of choice!** From Trinity, you will receive this super on-road racing package. You pick either a roadcourse- or an oval-course-configured car from Trinity. Trinity will also give you a matched battery pack and a Speed Gems machine-wound modified motor to go with the car of your choice!



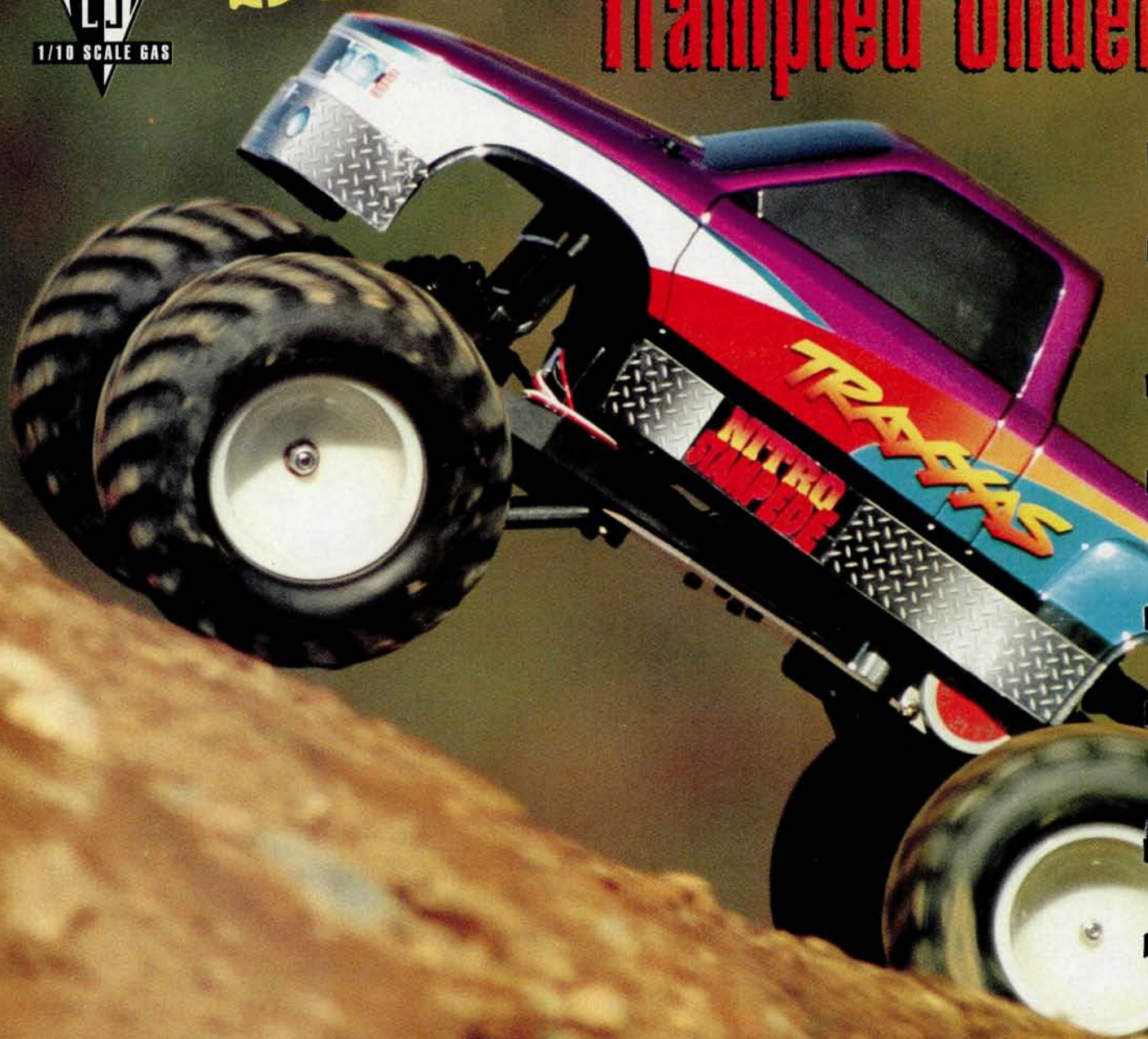
The winner will receive the **Trinity pro pit box**. This contains an assortment of Trinity accessories for the serious racer. The box includes a complete set of Trinity tools, such as Allen drivers, comm sticks, a full set of silicone shock oils, an assortment of Magic Motorsports 64-pitch pinions, an assortment of Kinwald Hard Ones 48-pitch pinion gears, Trinity Motor Doctor cleaning spray, bushing and bearing oil, comm drops, Zip-Grip for foam tires, Buggy Grip for off-road tires and an assortment of motor brushes and springs.



Three lucky winners will receive a full assortment of Trinity apparel, including hats, T-shirts, sweatshirts and car-hauler bags.



SEVERELY Trampled Under



SPECIFICATIONS

SCALE 1/10
LIST PRICE \$595 (w/radio);
 \$495 (w/out radio)

DIMENSIONS
 Overall length 16.75 in.
 Wheelbase 10.50 in.
 Width (F/R) 12.75 in.

WEIGHT
 Gross (RTR) 5 lb., 6 oz.

CHASSIS
 Type Double-deck semi tub
 Material Aluminum/
 fiber composite

SUSPENSION (F/R)
 Type Lower A-arm, adjustable
 upper turnbuckles
 Damping Molded, oil-filled
 coil-over shocks

DRIVE TRAIN
 Type Gear
 Primary Clutch bell/spur
 Transmission 0.8 metric pitch,
 three-gear
 Differential(s) Planetary gear
 Slipper clutch Friction
 w/Rulon pegs
 Bearings/bushings Bearings/
 Oilite bushings

foot

Traxxas Nitro Stampede

by GEORGE M. GONZALEZ



I HAD A BLAST testing the Stampede—Traxxas' electric monster truck—for the March '95 issue of *R/C Car Action*. During the Thrash Test, the truck was driven over every kind of surface imaginable, including dirt, grass and sand. It hurtled over rocks in a dry lake bed, and it even blazed over the snow-banked trails of the Angeles Crest National Forest. The Stampede handled all the abuse I threw at it, and in return, it threw it all back at me via its aggressive monster truck tires. In short, I was thoroughly impressed with the truck's durability and performance.

Now, Traxxas has released a glow-powered version of the Stampede, which is appropriately titled the Nitro Stampede. It's guaranteed to kick up more dirt, climb higher hills and yield longer run times than its electric sibling. Sign me up!

KIT FEATURES

At a glance, the Nitro Stampede looks very similar to the electric version, except for the

obvious design changes that were made to accommodate the new TRX-12 glow engine. A closer look reveals that the chassis, drive train and suspension underwent some serious beefing up. During a thorough inspection, I discovered that the only parts carried over from the electric version are the front shock tower, molded shocks, body mounts and tires. Basically, the Nitro Stampede is an all-new monster.

The chassis consists of two T-6 aluminum chassis plates that support the narrow, fiber-composite sub-chassis. The steering servo and receiver are mounted on the fiber-composite chassis in exactly the same way as

Things You'll Need

The Nitro Stampede comes 100-percent assembled and is available with and without radio equipment installed. Both versions have a pull-start engine with muffler, so you don't need much else to get going.

Model 4110—with radio

- 12 AA batteries (eight for the transmitter and four for the transmitter and servos).
- Glow-plug igniter.
- Fuel (10- to 15-percent nitro is recommended for engine break-in).
- Paint for the Lexan body.

Model 4104—without radio

- 12 AA batteries (eight for the transmitter and four for the transmitter and servos).
- 2-channel radio with two servos (one for throttle and one for steering).
- Glow-plug igniter.
- Fuel.
- Paint for the body.

likes

- Tremendously fast for a monster truck.
- Excellent handling for a truck with enormous ground clearance.
- High-quality materials and workmanship throughout.
- Bulletproof tranny with slipper clutch.
- Low price.
- Tear-down schematics included.
- Excellent factory support.

dislikes

- Excessive bump-steer in the front suspension.
- Nobody will play with me anymore because they're afraid!

WHEELS (F/R)

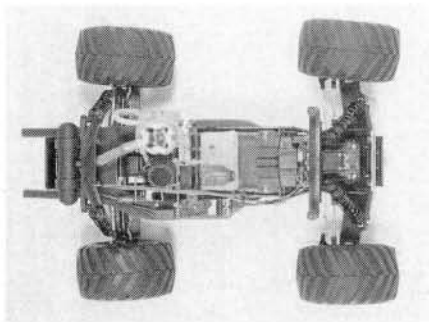
TypeOne-piece plastic
Dimensions (DxW)2.2x2 in.

TIRES (F/R)Rubber, terra-type monster truck

POWERPLANT

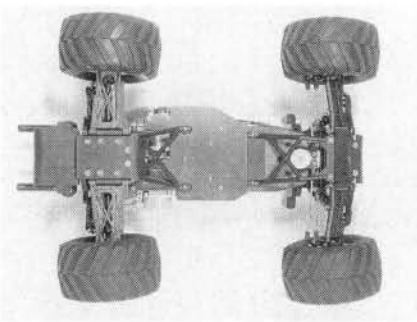
EngineTraxxas TRX-12
PipeDual exhaust
CarbBarrel carb

PHOTOS BY WALTER SIVAS



The Nitro Stampede is no mild-mannered monster; Traxxas did a fine job converting the Stampede to nitro power.

on the electric counterpart. The throttle servo and the 75cc fuel tank are mounted on an aluminum lower chassis plate, and the engine is mounted on the upper chassis plate on an adjustable engine mount. Like the electric version, the Nitro Stampede's front bulkhead and tranny are mounted below the



Check out the T-6 aluminum chassis. The flip side of the Nitro Stampede has been noticeably beefed up to handle the rigors of nitro power.

chassis and are supported by molded, lower cross-braces. The cross-braces may look like the electric version's, but they're of a larger diameter for extra strength. Overall, the chassis is extremely strong, light and easy to work on.

Up front, the bulkhead, A-arms, caster and steering blocks are very similar to those on Traxxas' top-of-the-line racing truck, the SRT. Traxxas even included the SRT's fiberglass A-arm brace, which is connected to the hinge pins with E-clips for strength—pretty trick. To allow the SRT's cone-dish wheels to be bolted right on, the centered-kingpin, live-axle caster blocks have been replaced by the conventional bearing-in-the-wheel system. I like these wheels better than the electric version's wheels because they're easier to clean and the bearings may be removed without having to remove the axle.

At the rear, you'll find that the A-arms, rear hub carriers and wheels are also SRT derivatives. The rear bulkhead, shock tower and tranny case have been redesigned and appear to be bulletproof. The Nitro Stampede also includes a rugged rear

bumper/wheelie skid plate, which has a built-in receiver battery tray. The battery tray features a molded cover that's secured by body clips. This cover seals the battery against the elements. A conventional, 4-cell, AA battery holder is supplied; however, built-up 4- and 5-cell Ni-Cds will fit—no problemo!

On all four corners, there are molded, oil-filled, coil-over shocks that have double O-rings and rubber diaphragms for smooth, leak-free operation. The shocks also feature quick-release, spring pre-load spacers that make spring pre-load and ride-height adjustments a snap. The Nitro Stampede also includes a complete set of adjustable turnbuckles, which are an option on the electric version.

The transmission has also been completely re-tooled to withstand the massive ponies the small-block .12 produces. For starters, the tranny features a super-low 3.75:1 final gear ratio that produces the torque that's necessary for climbing rocks and hills. The three internal tranny gears are 0.8 metric pitch, so stripping is highly unlikely. Also, the diff's internal planetary gears are hard steel and should last the life of the truck. For added protection, a slipper clutch is mounted on the 66-tooth spur gear and uses the same Rulon pegs as are found on the SRT. To handle the load of the .12 engine, the entire transmission is supported by 5x11 ball bearings. As on the electric version, the power is transferred to the wheels by means of molded universal slider shafts.

TEST GEAR

I received the model that included the radio gear. The package included a Traxxas model 2020 2-channel transmitter, a pair of 2018 servos and a 27MHz AM receiver. All I had to supply was the Thunder Tiger* glow-starter, Blue Thunder* fuel and rags to wipe the drool off my lower lip.

PERFORMANCE

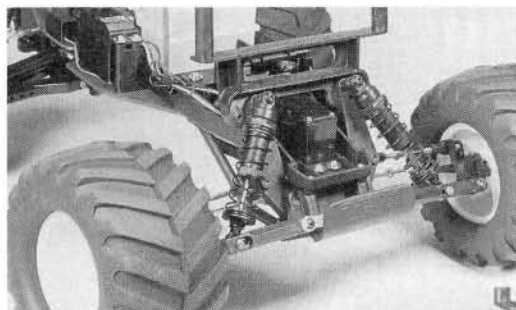
I packed up my gear and headed to the beach with my brand-new Nitro

Building and Setup Tips

My Nitro Stampede came equipped with all the radio gear, so the receiver and servos were already mounted on the chassis. That didn't leave me much to do except paint the body. Because I had 16 other bodies to paint and an approaching deadline, I sent the body to Scott Bich, of Bich'n Bodies* for a radical paint job to go along with this equally radical monster truck. As usual, Scott pulled through—big time!

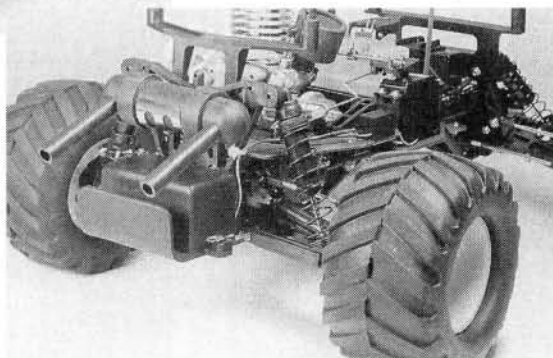
As far as setup tips go: be sure to break in the engine according to Traxxas' recommendations, and use a low-nitro fuel to start (10- to 15-percent nitro). Before starting the engine, be sure the transmitter is turned on, and set the throttle trim (if necessary) so that the truck idles at a standstill. Never run the truck without the air filter attached—unless you're looking forward to changing the piston and sleeve. Take along plenty of food and water because you'll be playing with this *bad boy* for a long time!

I noticed that my truck had a serious case of bump-steer. I remedied it by bolting the steering turnbuckle ball ends to the top of the steering block instead of below it. I also added shims between the steering-block arm and the ball end until the problem had been corrected. To set up the slipper clutch, tighten the slipper adjustment nut until the spring collapses, then back off half a turn.



Top: the front suspension has been nitro-proofed with new A-arms, bulkhead, caster and steering blocks, adjustable turnbuckles and fiberglass A-arm brace.

Right: at the rear, you'll find new, stronger A-arms, a new bulkhead and shock tower, adjustable turnbuckles and a rear bumper/battery tray.

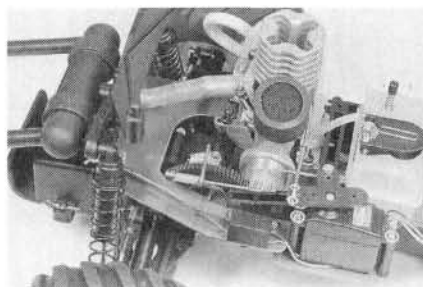


Factory Option

- Ball bearings

	Kyosho Nitro Tracker	Traxxas Nitro Stampede	Kyosho RAV4
Wheelbase	10.8 in.	10.5 in.	10.8 in.
Width	11.6 in.	12.75 in.	11.6 in.
Weight	4 lb.	5 lb., 6 oz.	4 lb.
Diff type	Bevel gear	Planetary	Bevel gear
Brakes	Drum	Disk	Drum
Price	\$399.99	\$495	\$379.99
Available at*	\$249.99**	\$279.99**	\$279.99
Issue reviewed	9/93	2/96	TC

*Prices vary with location. **Without radio gear



The new TRX-12 is a real performer. It features a durable, easy-to-replace pull-start mechanism, a trick air filter and a lightweight aluminum flywheel. Check out the quick-fill, 75cc fuel tank and the cool, dual-exhaust tuned pipe.

Stampede. Fortunately, it was a cold day so there weren't any sunbathers or hungry seagulls. After a few tugs on the pull-starter, the Stampede started, but it died almost as quickly as it had started. For some reason, the fuel wasn't getting to the carb.

After a lot of head scratching, I discovered that one of the fuel lines had a small hole that was causing some pressure problems. After I had installed a new fuel line, the engine started up and idled steadily. Traxxas was kind enough to break-in the engine properly for me, so it was full steam ahead from the git-go.

I pegged the throttle, and the truck lunged forward with some serious motivation. I found it extremely responsive and quick to

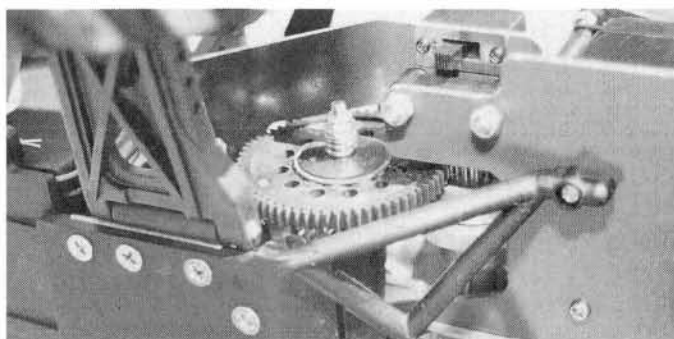


The battery tray has a fuelproof cover and will accommodate home-built 4- and 5-cell battery packs as well as the supplied 4-cell cradle.

follow my commands. The sand was full of bumps and hills, but they posed no threat to the truck's excellent suspension. Top speed was impressive, but it wasn't any faster than the electric version with a modified motor. I noticed the advantages of nitro power, however, when the truck eventually ran out of gas some 9 minutes later. A quick 10-second fuel stop and the truck was up and running again.

The next test session was at a BMX track near our office. There were hills and rocks everywhere, so it seemed like the perfect testing ground for the Nitro Stampede. Once again, the truck impressed me with its rock-

crushing ruggedness as it crawled over ruts and stones with authority. During one of the pit stops, I ended up flooding the engine, and that made it very difficult to yank on the pull starter. I should have pulled the glow plug out to let out some pressure, but I continued to yank on



The Nitro Stampede comes with a slipper clutch to protect the tranny's internal gears from stripping when the small-block .12 drops the ponies.

TRX-12 Engine

The TRX-12 engine puts the old Image .12 engine that was used on several other nitro-powered Traxxas models out to pasture. To say the TRX-12 is far superior to the old one would be a major understatement; in fact, the difference is like night and day. Fuel leaks, pressure problems and faulty pull-starters plagued the Image .12, but not the TRX-12.

The TRX-12's hot new features:

- It was designed and manufactured by Traxxas using the latest in CNC technology and uses ABC construction throughout.
- The crankshaft uses two high-quality ball bearings for smooth performance and increased reliability.
- The clutch bell is also supported by ball bearings instead of those pesky needle bearings.
- The recoil starter's pull-start cable and starter spring have been tested to ensure durability and long life.
- The low- and high-speed needle-valve seats are sealed with double O-rings to prevent air leaks from developing.
- The barrel-type carburetor is also sealed with double O-rings at the neck for an airtight fit.
- The carburetor barrel is sealed with a rubber boot to protect it from the elements.
- At the mount, the manifold is sealed with silicone rubber to prevent fuel from leaking out.
- The large finned, heat-sink cylinder head promotes effective heat dissipation.

the pull-starter and ended up breaking the starter cord. I did find out that Traxxas sells a replacement pull-start mechanism that includes the pull-start cable, pull-start handle, spring and pull-start housing. The unit is very inexpensive and is attached with four screws.

FINAL THOUGHTS

The Traxxas Nitro Stampede was designed to put you in the fun zone quickly. Just take it out of the box, paint the body, fill it up with fuel and go climb the gnarliest hill you can find. Be careful, though; this truck is capable of launching itself off the top of the hill and hitting some low-flying Cessna, or disrupting the flight pattern of some migrating ducks. When you've finished catching some air, go find some rocks and watch the truck's suspension soak them up as though they were pillows.

The Nitro Stampede is one of the coolest trucks I have ever reviewed. Unfortunately, Frank and Doogie swiped it off my workbench, and I haven't seen the truck or them for a few days. My hat's off to the folks at Traxxas for creating a monster that's guaranteed to win the hearts of anyone who's lucky enough to own one.

*Addresses are listed alphabetically in the Index of Manufacturers on page 176. ■



FLYING POINT*, manufacturer of the Jet Probe 1/8-scale buggy (featured in *R/C Car Action*, January '95), has hit the 1/10-scale nitro scene with the Pizazz TK-1 nitro-powered 2WD stadium truck.

Only two days after I had spoken to John Howell about doing a "Thrash Test" on the TK-1, the truck arrived at my door. Immediately, the words "90-percent assembled" seemed to jump off the box. I thought to myself, "Does this mean it won't be three days before I can actually play with the truck?" Yes, that's exactly what it means. From box to play is less than 3 hours. Glue on the tires, install the radio gear, paint the body, and you're on your way to nitro-burning, dirt-sliding, high-speed fun.

PHOTOS BY JOHN HOWELL; BODY CUSTOM-PAINTED BY T.K. CUSTOMS*



FLYING POINT **Pizazz TK-1**

by Brian Leslie

SPECIFICATIONS

SCALE 1/10
LIST PRICE \$485

DIMENSIONS

Overall length 16 in.
Wheelbase 10.25 in.
Width (F) 11.75 in.
Width (R) 12.25 in.

WEIGHT (gross) 4 lb., 2 oz.

CHASSIS

Type Tub
Material Duralumin

DRIVE TRAIN

Type Sealed gear drive
Primary Clutch bell/pinion/spur
Transmission 3-gear
Differential Planetary
Slipper clutch "Friction peg"
disk
Bearings/bushings Bearings/
bushings

SUSPENSION (F/R)

Type Lower A-arms with upper
control link
Damping High-volume, aluminum,
oil-filled, coil-overs

WHEELS (F/R)

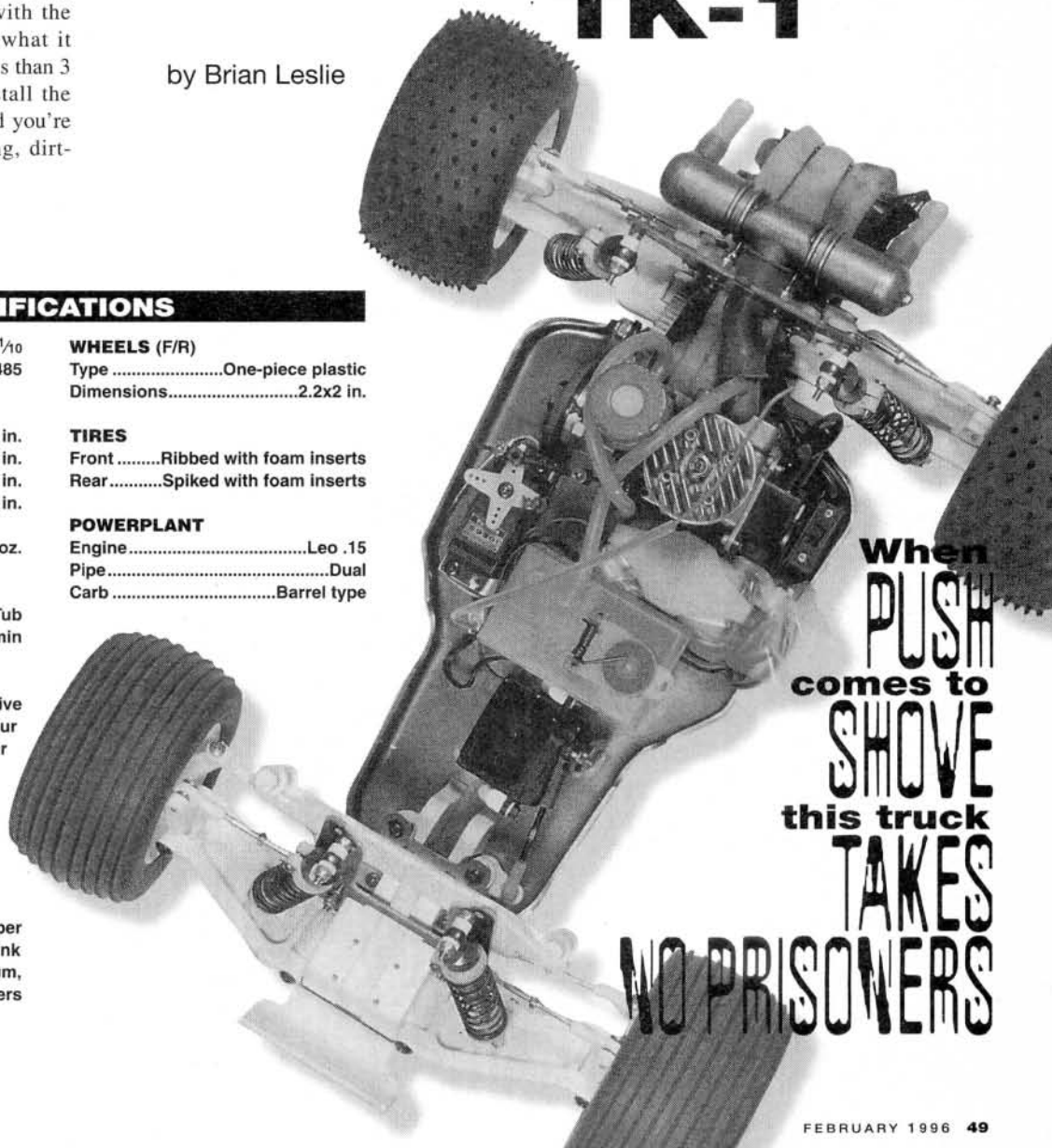
Type One-piece plastic
Dimensions 2.2x2 in.

TIRES

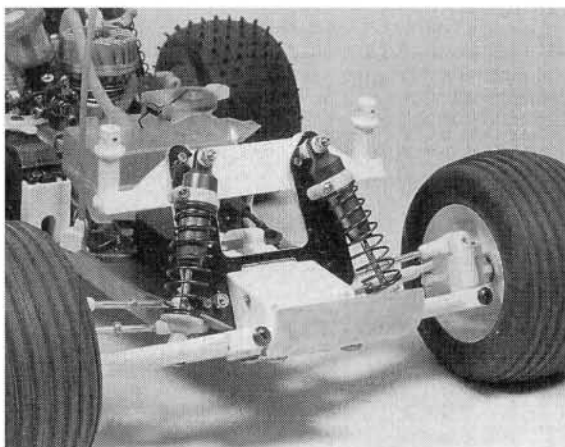
Front Ribbed with foam inserts
Rear Spiked with foam inserts

POWERPLANT

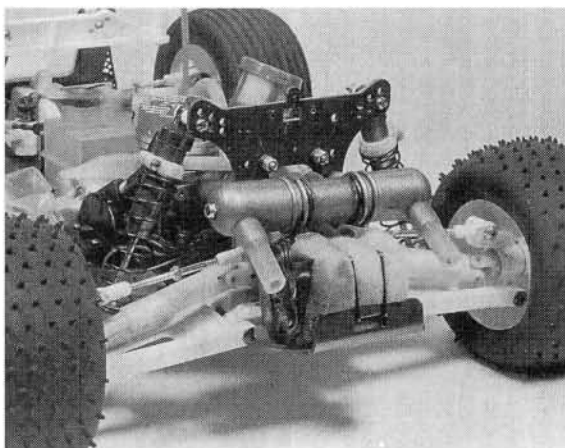
Engine Leo .15
Pipe Dual
Carb Barrel type



**When
PUSH
comes to
SHOVE
this truck
TAKES
NO PRISONERS**



Up front, you'll find the typical racing-truck setup—bellcrank steering, oil-filled coil-over shocks and ribbed tires.



Mini-spike tires help the truck's traction action while oil-filled coil-over shocks handle the bumps and jumps. The receiver battery pack is behind the rear bulkhead.

FEATURES

The very rugged, tub-style chassis is stamped out of a single piece of 2.5mm-thick, purple-anodized duralumin. Although the TK-1 comes with a pull-start engine, if you'd rather use a non-pull-start engine, the chassis has a cutout for the flywheel. To allow easy access to the servo-horn screw, the chassis also has a cutout on the side next to the steering servo.

The one-piece steering bellcrank has a built-in servo-saver; however, the tension isn't adjustable. The bellcrank is supported on top by a metal brace, which makes the system nearly indestructible.

To support the black-fiber-glass shock tower and act as A-arm mounts, a nylon bulkhead is used up front. The bulkhead, transmission cases, A-arms and other miscellaneous mounts are white, so they're ready to be dyed the color of your choice.

The front and rear suspension consists of lower A-arms with upper control links (turn-buckles). Purple-anodized high-volume aluminum shocks with hot-pink mounts add a splash of color to all four corners of the truck. The shocks have smooth damping action, but the front springs are a tad soft for my liking. Front and rear shock towers

have several shock-mounting positions for fine-tuning ease.

To deliver power from the included .15 Leo engine to the wheels, the transmission has ball-bearing-supported gears—except the idler gear, which is bushing-supported. The smooth-working, planetary-type differential has all-steel gears and can be adjusted by using thicker or thinner grease on the gears; the stock grease works well. To aid in traction and take some of the stress off the tranny, a slipper clutch is connected to the spur gear. "Friction pegs" are housed in the spur gear and sandwiched between two steel disks; they're used to provide slip or grip. You adjust the slipper by tightening the nut on the spur-gear shaft. Splined, telescoping-type drive shafts transfer the power from the transmission to the rear wheels.

The Leo .15 pull-start engine is already installed; it has a ball-bearing supported crankshaft and ABC cylinder construction. The carburetor is the barrel type with all the adjustments needed to fine-tune it. The throttle arm on the carb is metal and comes with a pre-drilled hole for the servo linkage. The Leo's dual-exhaust system helps to keep the chassis and body free of fuel residue. The TK-1 has a fuel cell with a manual primer pump on the bottom of the tank, which greatly eases starting chores.

To stop, the TK-1 uses a hinged arm that rubs up against the clutch-bell housing and acts as a brake. The brake arm is made of nylon, which seems to be a little too soft to be used as braking material.

Factory Option

- O.S.* clutch and engine-mount setup for O.S. engines.

Things You'll Need

- A good 2-channel radio with throttle ATV would be helpful.
- Two servos (preferably one with 60 ounces of torque for the steering duties).
- A receiver pack.

- Fuel.
- Glow-plug igniter.
- Du-Bro* in-line fuel filter—part no. 340.
- O.S. no. 8 or McCoy no. 9 glow plug.

Building and Setup Tips

• Before you drive the truck, check the mesh between the spur gear and the pinion gear. Because the flywheel obstructs your view of the area, you'll have to loosen the engine-mount screws and slide a piece of paper between the gears. Slide the motor until the pinion is tight against the paper, and tighten the engine-mount screws. Rotate the spur gear to remove the paper.

• To improve cornering, raise the front shock collars to the top of the shocks, and lower the rear shock collars $\frac{1}{4}$ inch.

• To increase damping and make the truck more stable in the rough stuff, try a heavier shock oil, such as 40WT, in the front shocks.

• After I had mounted the rear wheels on the axle and tightened the steel locknut, I

noticed excessive play between the wheel and the hub carrier. I checked the instructions to see whether I had neglected to add a washer, but they hadn't called for one. I placed a no. 10 washer between the wheel and the locknut to take up the space, and it did the trick.

• You'll need to supply your own screws to mount the steering and throttle servos

on the brackets. I suggest that you use 4-40x $\frac{3}{8}$ cap screws with no. 4 washers.

• The last step to take with any nitro-powered machine is to put Loctite on every metal-to-metal connection. Failure to do so will result in the loss of parts and many trips to the hobby store. Nitro vehicles shake, rattle and roll every part that's attached to them.

	Flying Point Pizazz TK-1	Associated RC10GST	Traxxas Nitro Hawk	Kyosho Outlaw Rampage Pro Sport
Wheelbase	10.25 in.	11.1 in.	10.69 in.	10.9 in.
Width (F/R)	11.75 in./12.25 in.	12.25 in.	12.125 in.	12.2 in.
Weight	4 lb., 2 oz.	4 lb., 0.03 oz.	4 lb., 0.75 oz.	4 lb., 2 oz.
Diff type	Planetary	Ball	Planetary	Ball
Brakes	Drum	Disk	Drum	Drum
Exhaust	Dual pipe	Not included	Rubber pipe	Muffler
Price	\$485	\$500	\$415	\$469.99
Available at*	\$291	\$289.99	\$234	\$299
Issue reviewed	2/96	5/94	5/93	TC

*Prices vary with location.

TEST GEAR

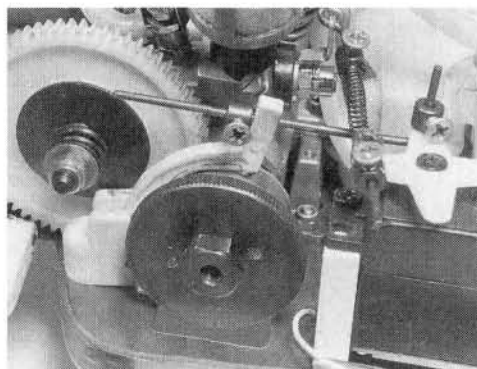
I used an Airtronics* CS2P for the transmitter and 94102 servos for steering and throttle control. Although the steering servo has a very tight fit, it will go in the chassis plate. The throttle servo is no problem, but the servo wire should be taped down to the chassis to prevent it from becoming wrapped around the flywheel. The receiver battery pack should be wrapped in foam to insulate it from the aluminum chassis and protect it during crashes. Failure to do this could result in severe radio glitching.

PERFORMANCE

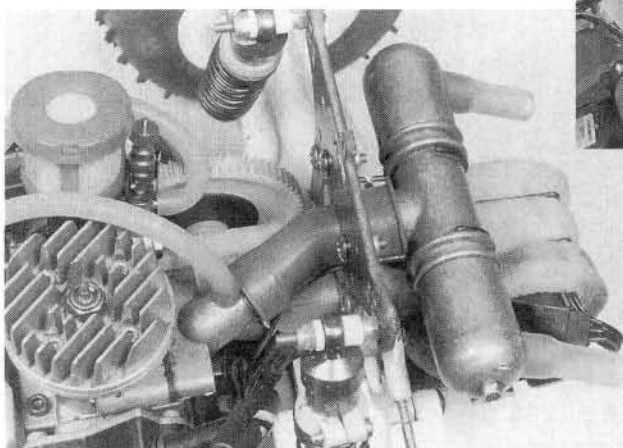
For the shakedown and break-in run at my own test track at home, I ran four tanks of fuel through the engine. Afterward, I inspected the truck for loose nuts and bolts and wheel and gear alignment. I noticed that the brake arm was nearly worn out. To remedy this, I super-glued a small strip of leather to its underside. Everything else looked OK, so I packed up my gear and headed over to my local track. The track was still rough after the weekend's races, so the TK-1 got a good, hard workout.

I fueled it up, primed it, pulled the pull-starter three times, and the Leo .15 nitro burner came to life. Ah—I love the smell of nitromethane in the morning! I took a couple of slow laps to reacquaint myself with the track and make sure that all the trim adjustments had been properly set. Then I nailed it—ooh, yeah! There's nothing like the speed and sound of a nitro engine.

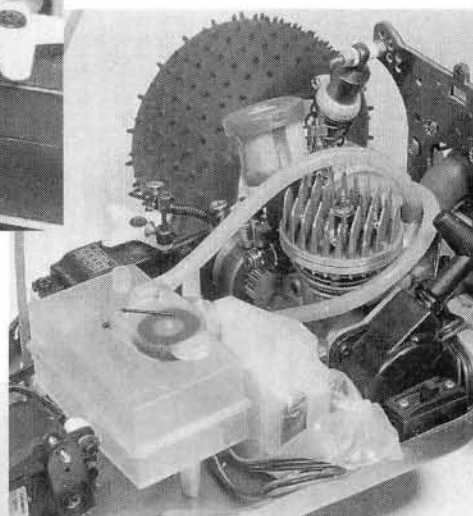
I had to pick the truck up out of the fence a few times, so I decided to take it easy and try to be more consistent—or at least stay on the track. I ran a few good laps, and I noticed that the front end had a pretty bad push, so I raised the front shock



The Pizazz comes with a drum-brake system. Its design isn't as high-tech as a disc-brake setup, but it still works well.



I found the included exhaust system slightly restrictive. To extract a little extra power, I plan to add a tuned pipe.



The included Leo .15 engine provides plenty of power.

truck skate a bit, but I think a heavier shock oil would take care of that. Basically, the TK-1 ran well all day with no major problems, and that can make a day at the track a lot of fun.

FINAL THOUGHTS

You won't find a ton of upgrades for this truck or see its name splashed all over the winners' column at the latest national event. It's a good, solid, entry-level gas truck for anyone who just wants to have fun. With the TK-1, you don't have to keep up with the Joneses and buy a bunch of accessories or trick parts. The truck performs well right out of the box. It's also really nice to go from the box to the track in less than 3 hours. If you want get into gas, the Pizazz TK-1 is worth taking a look at.

*Addresses are listed alphabetically in the Index of Manufacturers on page 176.

Likes



- Comes 90-percent assembled.
- Includes many race features such as a full set of bearings.
- Excellent pull-start unit on the engine.
- Extra-rugged chassis and front end.

Dislikes



- Brake-arm material is soft and wears out too quickly.
- Building instructions are vague.
- Glow plug is not included with kit.



Le Cool Le Car

Tamiya Renault Clio

by RICK SCHWARTZ

WHEN I covered my first Tamiya Championship Series parking-lot race for *R/C Car Action*, I was impressed. It was fun to watch, and judging by the look of the drivers, a lot of fun to race. I couldn't wait to get my hands on one of the cars. Well, it happened—sooner than I expected. A special delivery package arrived from the *Car Action* office with a request to track test Tamiya's* Renault Clio Williams Limited Edition.

KIT FEATURES

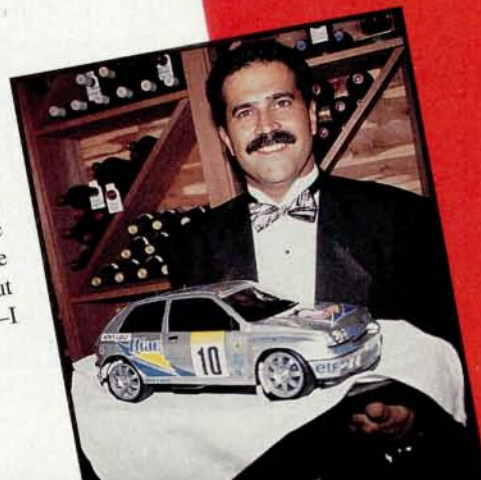
First, I always read the assembly manual completely and check to make sure I have all the parts. As usual, Tamiya put together a neat, well-organized package that takes you through the building process step by step. I usually follow the assembly directions in the order they're shown in the manual. After checking out the final step—painting and decals—I changed my mind about this.

Factory Options

- Complete tranny and wheel ball-bearing kit—part no. 53137.
- Tuned spring kit—53163.
- Aluminum motor plate that also stiffens the front end—53177.
- Modified Acto Power SP Touring motor—53153.
- Stainless-steel hinge pins—53098.
- Super-slick tires—53133.
- A neat backup light set—53114.

Things You'll Need

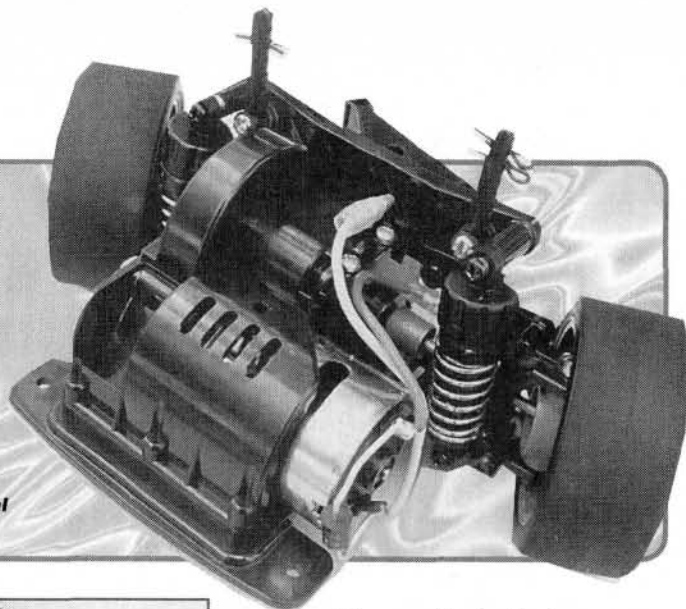
- Battery pack
- Battery charger
- ESC
- Radio gear



Building and Setup Tips

- Read the instruction manual carefully before you start to assemble the Clio.
- When assembling the ball diff, be sure to tighten the diff bolt all the way down, or you'll have a lot of slippage.

The stock 540 motor is in front of the gearbox. For a really hot setup, when you're used to the car's handling traits, ditch the stock motor and replace it with a hotter ROAR- or NORRCA-legal stock motor.

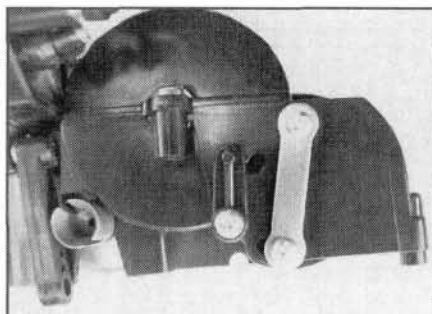


likes

- Highest-quality parts and fit for a parking-lot racer.
- Decals make the car look like the real thing.
- Front end is easy to disassemble.
- Easy to drive.
- Many available hop-ups.

dislikes

- Suspension is a little loose.
- Diff adjustment is difficult.



To align the Clio's pinion and spur gear properly, look through the hole on the side of the gearbox.

There were so many decals in the kit that I decided to apply them first so that I would take the time to do it properly. You know how it is when you build a vehicle!

When you tighten the last nut, you want to put the car on the track; the last thing you want to do is spend hours applying decals. When I had finished the body's exterior, the car looked hot—exactly as shown the picture Tamiya supplied.

The car has three main sections; you can very easily detach the front and rear from the main chassis. The front section is the most important because it contains the drive train. The ball diff went together easily, but it's really important to make sure you tighten the diff bolt down all the way, or you'll end up with a lot of slippage.

Tamiya gives you a choice of a 66- or 71-tooth spur gear. I went with the tall 71, because I feel it's more versatile. With the front end, I really took my time and cut all



Renault Racing

They have been building cars in France for almost 100 years, and since the beginning, Renault has been racing them. Although the company stopped selling passenger vehicles in the U.S. in 1987, they're still one of Europe's largest manufacturers; and though Renaults aren't seen on U.S. roads, we can still identify with the company through its racing team. Although famous for its world Formula 1 wins, the company is involved in almost all classes of racing.

The Renault Clio 2L Williams is a Class A front-wheel-drive rally car. Racing under the Team Diac colors, racers Jean Ragnotti and Giles Thimonier have been extremely successful on the European tour, and their victory in the 1994 Monte Carlo WRC in the 2-liter 2WD class placed them 13th overall in the event.

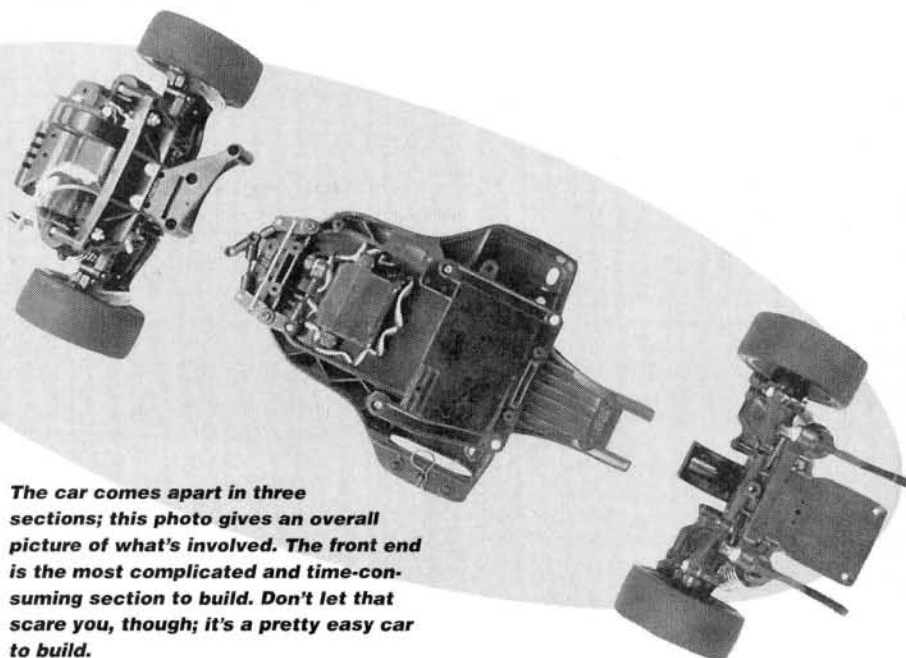


Semiautomatic

Renault's research division recently reintroduced the first *semiautomatic* gearbox in French rally history. They worked with Magnetti-Marelli, who's also a partner in Renault's F1 team, and the advances in the tranny "are as much physical as they are technical."

Advantages include:

- gears change twice as fast, and the driver can keep his foot on the accelerator;
- gears change more reliably and may be changed in delicate driving situations;
- engine wear is reduced because drivers are prevented from down-shifting when the engine revs are too high;
- driver fatigue is reduced, and drivers can concentrate solely on driving.



The car comes apart in three sections; this photo gives an overall picture of what's involved. The front end is the most complicated and time-consuming section to build. Don't let that scare you, though; it's a pretty easy car to build.

the flashing off the plastic parts. The kit contains bushings for the tranny and wheels, and they are of a really high quality, and everything worked fairly smoothly.

Because of the new popularity of the FWD touring-class cars, Tamiya made the Renault's wheelbase 13mm shorter than those on their previous models. Along with changing the design from having rear toe-out to having toe-in, this modification aids drivers who don't have experience driving a front-wheel-drive car.

Synthetic-rubber slicks on eight-spoke ABS wheels put the power to the pavement and are the image of actual tarmac racing tires.

TEST GEAR

I used a Novak* Racer ESC and Novak NER-2X AM receiver coupled with a

Futaba* Sport radio and 148 servo. The Racer ESC is great for beginners because it has One-Touch Set-Up™. Power was provided by a Trinity* Zip-Pak battery. Since this was a pure, "out-of-the-box" review, I didn't use aftermarket parts. The Tamiya Championship Series stock division doesn't allow modifications, and I wanted to test the car as it would be raced.

PERFORMANCE

For the performance test, I chose what I *thought* would be an empty parking lot. Accompanied by my trusty pit man, John Argentino, I set up for a variety of driving conditions, including straightaway speed, cornering, bumps and even handling on a slick surface.

When we were ready to go, the parking lot started to fill with spectators who had been driving by and wanted to check out the car. After answering innumerable questions, we were ready to hit the throttle. In the straightaways, the car tracked very well. The parking lot was mostly smooth, and the oil-filled plastic shocks were acceptable. When the car did encounter bumps, the front end got a little squirrely.

In the turns, the car leaned a lot, but the tires kept all four wheels on the ground. The car is fast enough to satisfy newcomers to R/C racing, but experienced drivers might find it a little slow for their tastes. As for me, after running about four packs, I was even more convinced that stock, out-of-the-box parking-lot racing is a blast!

*Addresses are listed alphabetically in the Index of Manufacturers on page 176.

SPECIFICATIONS

SCALE 1/10
LIST PRICE \$260

DIMENSIONS

Length overall 15.1 in.
Width overall 7.2 in.
Wheelbase 7.6 in.

WEIGHT (gross, RTR) 3.1 lb.

CHASSIS

Type Tub
Material Plastic

DRIVE TRAIN

Type Sealed gear
Primary Pinion/spur

Transmission

—Differential(s) Ball
—Slipper clutch None
—Bearings/bushings Bushings

SUSPENSION (F/R) Plastic,
oil-filled, coil-over shocks

WHEELS (F/R)

Type One-piece plastic
Dimensions (DxW) 2x1 in.

TIRES (F/R) Slicks

ELECTRICS

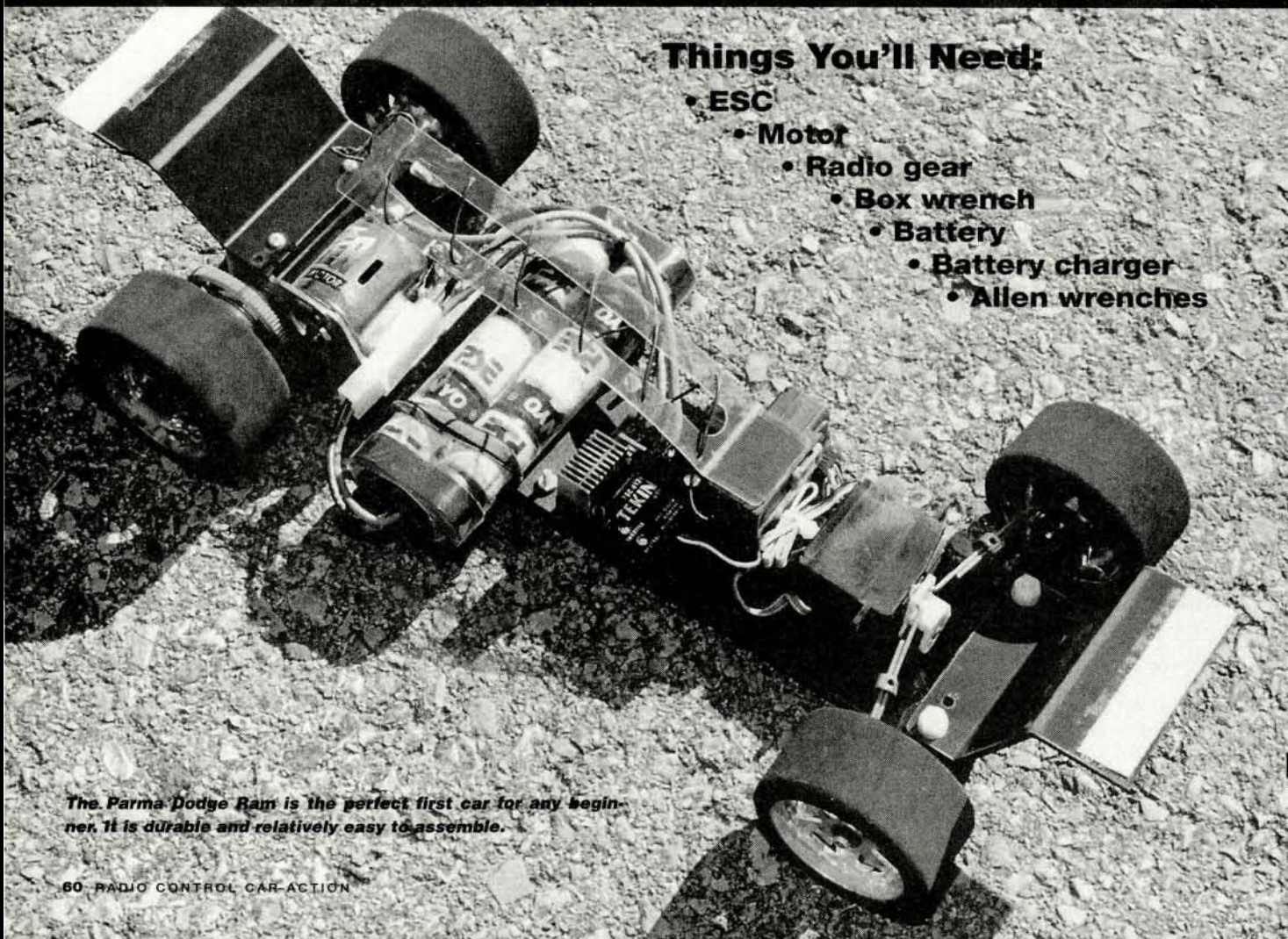
Motor 540 Mabuchi
Battery Not included
ESC Not included



Parking-lot Pick

Things You'll Need:

- ESC
- Motor
- Radio gear
- Box wrench
- Battery
- Battery charger
- Allen wrenches



The Parma Dodge Ram is the perfect first car for any beginner. It is durable and relatively easy to assemble.

Parma Dodge Ram

by MICHAEL "KING
OF THE R/C'ERS" BOUSE

"YES, I CAN!" That's what I said to our editors when they asked me whether I would be able to assemble one of the easiest on-road kits around. I was one of those kids who disassembled (and broke) every toy he owned, so I felt uniquely qualified to put together a Parma* truck. It isn't just a truck, mind you; it's one of those cool-looking Dodge Ram trucks with the kickin' front grill. I like flashy-looking vehicles.

KIT FEATURES

This truck is perfect for R/C novices who want to get into R/C but don't want to get into racing. You can always buy hop-up parts for future upgrades—no problem.

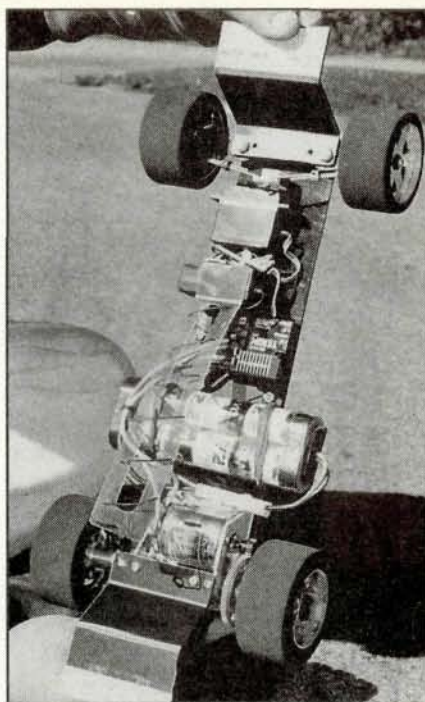
Being a first-time R/C car builder, I had absolutely no tools to accomplish this feat. After I had opened the box and read the directions, I realized that, although most kits include a box wrench and an Allen-wrench set for the included screws, this one did not. You should pick up these tools immediately, because it saves time later.

The Parma Dodge Ram includes a strong, fiberglass chassis, a durable, steel axle and mounted foam tires with plastic, chrome-plated wheels.

The entire package was well-planned. It pretty much breaks down into three sections that must be assembled: rear end, front end and chassis. Each of the three sections has a bag of parts that's conveniently marked A, B, or C to facilitate finding the pieces and to avoid confusing them with other, similar-looking parts.

As far as the directions go, they're pretty good. Some of the illustrations don't exactly match the parts they're identifying, but there's a good chart at the front to refer to in a crisis.

From start to finish, the truck was assembled in less than two hours, and that includes search time for anything I dropped on the floor.

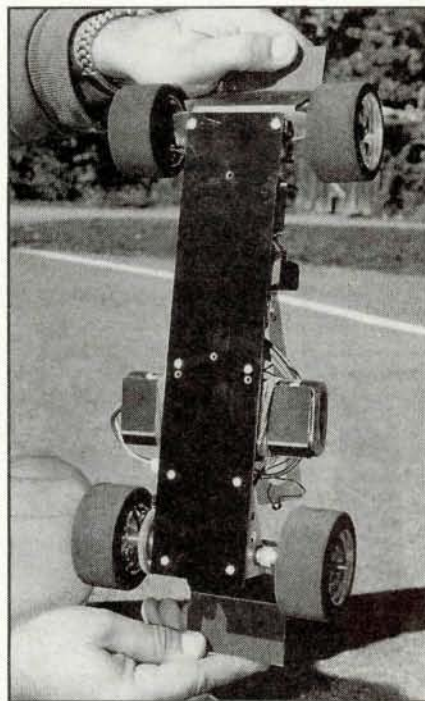


The Dodge Ram's design is straightforward; it borders on simple.

TEST GEAR

The truck doesn't come with any electronic gear to get it going, so you'll have to supply your own. I equipped my Parma with a JR* Python 2-channel radio, which comes with two servos. I used a 7-degree, 23-turn stock motor, which Parma kindly supplied. I also slapped in a nice Tekin* 412-P ESC. It took me a while to figure out the settings, but when I at last succeeded, it was good to go.

To recharge my battery pack, I bought a



The Ram's backbone is this G-10 fiberglass plate chassis.

IFICATIONS

.....1/10	
.....\$99.95	
.....17.25 in.	
.....10.5 in.	
.....6.5 in.	
.....6.6 in.	
.....2 lb., 7.8 oz.	
.....Plate	
.....Fiberglass	
.....Direct drive	
.....Pinion/spur	
.....Solid axle	
.....Ball	
.....None	
ingsBushings	
.....Coil-spring/rigid	
.....None	
.....One-piece plastic	
(xW)1 3/16x1 3/8 in.	
.....Foam	
ESC:Not included	

Building and Setup Tips

This was a great truck to assemble—nice and easy for the first-timer and a walk in the park for the experienced.

- The parts were easy to find and easy to fit together, but, at times, they were difficult to identify. A big plus was that the bags were separate. Don't open bag B until you get to part B of the instructions—fewer parts to lose. Bag C contains the chassis, wheels, body mounts, etc. They're all loose in the package. Before starting, sort everything into little piles and label every pile. This will make assembly much easier. At one point, I put masking tape on the table and put the part number on it for each pile.

- Definitely read the directions thoroughly before assembly. I didn't, but that's how I am. Therefore, I found myself easily confused because I didn't know that *this* would eventually go *there*—that sort of thing.

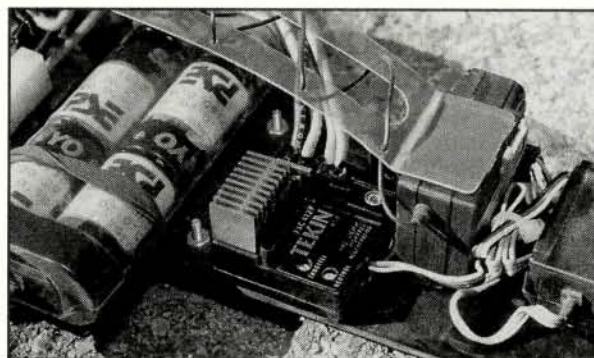
Dynamite* Mega 2 AC/DC Quick Charger. It will get me up and running in 15 to 20 minutes, or I can opt for the overnight trickle-charge.

PERFORMANCE

The day eventually arrived! Because I had never handled one of these things before, I decided to launch my truck in a totally empty parking lot—nothing to hit and nobody to injure.

To my delight, the truck flew. The steering was somewhat difficult, though. I toyed with the trim again and again, but the truck still pulled to the left, and I constantly had to adjust the steering wheel to keep it straight.

I told my problems to Doogie—one of our



I equipped the truck with a Tekin 412-P ESC, PSE SCRCs and JR radio gear.

in-house experts—who laughed his way through fixing my steering servo. It was too far from the wheels, and that overextended the steering linkages and threw the wheel off entirely; I had to manually straighten the wheels out to continue. Doog repositioned the servo so the linkages were straight, and that corrected the problem.

Then I learned the terms "even spacing" and "gear mesh." I noticed that, even after a fresh battery charge, the truck lost some of its "oomph." I picked it up and looked at what was once my spur gear—now with spokes as soft as Jell-O. It was at this point that I learned yet another term—"replacement parts." It took a little time, but I replaced the melted spur gear with a nice, new one. To get proper gear mesh, I had to remove the back tires and do some spacing with the nylon washers.

The word "go" doesn't do this truck justice; it flew. The speeds in that parking lot were so incredible, it was as if my formerly unobtrusive little R/C truck had run into a phone booth, thrown on a red cape and turned into "Supertruck."

OK—back to the parking lot. The truck was responding well, even at high speeds; I couldn't stop myself from keeping it at full throttle for as long as possible. It responded well even after I had slammed it into a curb—three times. I think durability is a very important feature of any R/C car.

FINAL THOUGHTS

The truck was a piece of cake to put together—even for a guy like me. There's a lot of room in the chassis, so it isn't hard to pull the truck apart and upgrade it. This also makes it easy to do any required adjustments; though, after hours of running, it required few.

If you're looking for a truck that's easy to assemble and very inexpensive, this one is for you. Most important—it looks cool!

*Addresses are listed alphabetically in the Index of Manufacturers on page 176.

likes

- Easy-to-follow instruction manual.
- Easy assembly.
- Adjustments and upgrades are simple to make. It's unnecessary to pull the entire truck apart.

dislikes

- No rear suspension.
- Didn't include tools (requires a box wrench and two Allen wrenches).
- It took extra effort to install the body mounts, but that probably was the hardest thing about the assembly.

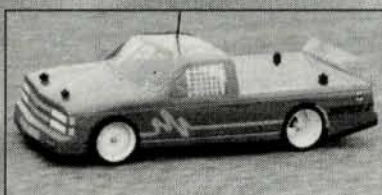
THE COMPETITION

	Parma Dodge Ram	Bolink Super-T
Wheelbase	10.5 in.	10.187 in.
Width	6.5 in.	8.25 in.
Weight	2 lb., 7.8 oz.	2 lb., 10 oz.
Diff type	Ball	Ball
Chassis	Fiberglass	Fiberglass
List price	\$99.95	\$99.95
Available at*	\$64.99	\$59.99
Reviewed in	2/96	1/96

*Prices vary with location.



Parma Dodge Ram



Bolink Super-T

the
1st

annual
**HOBBY SHACK/
RACE CONNECTION**

EX

The Parade of Cars took a while to set up, but it was well worth the effort—awesome sight!

Right: the spectacular concours event. Choosing two winners out of hundreds isn't easy. A system of elimination helped the judges decide on the two winning rides. Robert Harvey took top honors in F1 with his awesome Bennetton, and Earl Delano took first in Sedan for his totally trick Pilot/Michelin Ford Escort Cosworth.



Some of the action at the Traxxas "Try Me" track—spills, chills and laughs galore.

THE CALIFORNIA-based retailer/manufacturer/distributor, Hobby Shack*, has become well-known for its highly successful parking-lot racing series. Much of the program's success may be directly attributed to the low-pressure, family racing environment Hobby Shack provides and the company's relaxed, "Run what you brung" attitude.

The program features classes for both rookie and experienced racers, and the focus is on providing a professional atmosphere for non-sponsored racers. The racing format includes a racing class for just about every kind of R/C vehicle, so chances are, if you've got it, they race it. The format even includes special racing classes for Mini Coopers and Bolink Legends.

July 7, 1995, saw the First Annual Hobby Shack/Race Connection Expo, and like the company's popular parking-lot racing series, it was a complete success. Hobby Shack transformed the parking lot of its plush, new Riverside, CA, store into a huge R/C exhibition that would give the Ringling Brothers a run for their money. Their goal: to introduce R/C racing to as many people possible in one day.

PHOTOS BY GEORGE M. GONZALEZ



An introduction into the world of R/C

by George M. Gonzalez

Blue Crew employee Mike Hazzard (right) was on hand to help out racers and answer spectators' questions. Mike manages the Pasadena, CA, store. Below: Sedans are catching on in California. These cars looked so realistic through my camera lens that I actually jumped out of their way a couple of times.



Left: the ABC Racing Team from Los Alamitos, CA, gave the spectators a mega-dose of hard-core racing action. Is this a motley crew or what? Below: Blue Crew employee Brad Hammond tries Team Losi's full-scale Indycar for size. Where are the keys, guys?!



HOBBY SHACK/RACE CONNECTION EXPO

Many of the R/C industry's leading manufacturers set up tables under the giant exhibition tent and displayed their latest products. They also passed along racing tips and gave away plenty of goodies.

Riverside's rocking radio station, 99.1, broadcast live from the event; legendary disc jockey Hollywood Hamilton played the tunes, while the hundreds of spectators

Hundreds of spectators got a chance to see what R/C car racing is all about. And racers got a chance to "strut their stuff" in front of large crowds; and everyone listened to rock'n'roll under the hot California sun.



Team Losi owner "Pops" Losi and Team driver/captain Jack Johnson displayed Losi's latest products and brought along their full-scale Indycar for all to see.

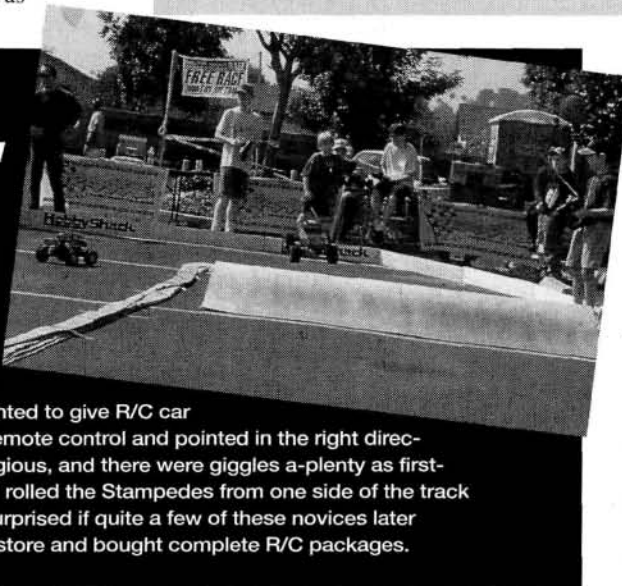
heard them from the world's largest boom box (it was over 30 feet long and came with a pair of 12-foot speakers). There has never been a better soundtrack for R/C car racing than rock'n'roll!

RACING ACTION

To begin, racers were asked to set their cars on the track to form a parade. This took a little while to set up, but it was

Traxxas "Try me Out" Track

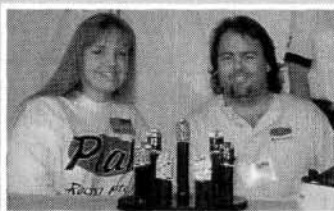
Traxxas* set up a small track and tossed in a bunch of Stampede monster trucks. Obstacles were set up, and anyone who wanted to give R/C car racing a try was handed a remote control and pointed in the right direction. The smiles were contagious, and there were giggles a-plenty as first-timers crashed, jumped and rolled the Stampedes from one side of the track to the other. I wouldn't be surprised if quite a few of these novices later marched right into a hobby store and bought complete R/C packages.



Exhibitors' Corner

Peak Performance

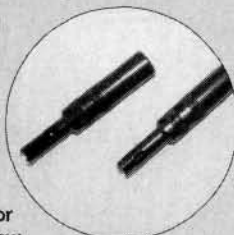
Peak Performance* owner Rick Hohwart displayed some of their latest products. Replacing the Beast motor, the Super Beast 24-degree competition stock motor comes with



Rick and Tracy Hohwart from Peak Performance.

new, upgraded brushes and springs, the capacitors are already installed, and it has a cool-looking new label. The motor undergoes a new break-in method, and a superior comm drop is used during the process.

The company's new, rugged, aluminum Tom's Tool ball-cup wrench was also on display. Its innovative design makes popping off those pesky Associated- and Losi-type ball cups a snap, and it doesn't chew them up.



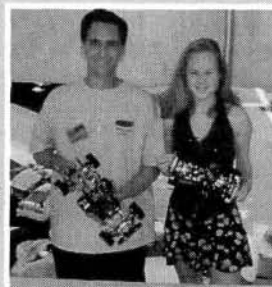
Peak Performance's new "Tom's Tool" really helps pop off those pesky ball cups.

Japan R/C Imports

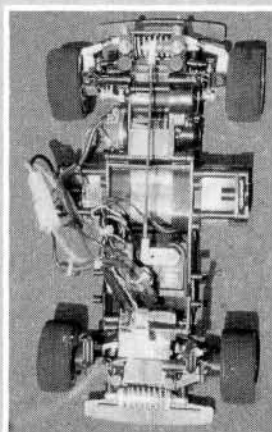
Company owner Aaron Biner ran one of the most popular displays at the Expo.

Japan R/C Imports* is the U.S. distributor of all those wonderful-looking Kose hop-ups for the popular Tamiya and Yokomo cars. The goodies they displayed included: lightweight, blue-anodized aluminum motor pods for Tamiya F1s; machined-aluminum suspension arms and aluminum, oil-filled, coil-over shocks for Tamiya and Yokomo sedans; adjustable upper camber links, one-way diffs and hard-anodized out-drives for

Tamiya sedans; carbon-fiber drive shafts for all Tamiya TA02 sedans; and adjustable-length universal-joint axles for both the "narrow" and the "wide" Tamiya TA02 chassis. These Kose hop-ups were designed to increase the tunability and reliability of your Tamiya and Yokomo sedans, and they look really cool mounted on the chassis.



Aaron Biner and Brittany Wilkerson from Japan R/C Imports.



As you can see, this is no ordinary Tamiya Mini Cooper chassis (M02). It's decked out with many of Kose's new hop-ups.

well worth it to see over 150 scale R/C cars lined up in formation. Next came concours. With so many hot-looking cars, it must have been a trying job to pick out the winners. After judges had followed a system of elimination, however, Robert Harvey took the first-place honors in the F1 class, and Earl "The Squirrel" Delano took first in the Sedan class (nice job, guys).

Directly after this, the racing started, and the crowd was treated to some of the hottest parking-lot racing on the West Coast. The classes included: F1 (Rookie, Stock and Expert); Sedan/Touring (Rookie, Stock and Expert); Direct-Drive (Stock and Expert); Gearbox Rookie and Pro-Stock; Stadium Gearbox Pro-Stock; Mini Cooper; and the

Pro-Line/Jaco/Protoform

Todd Mattson from Pro-Line* displayed some of his company's exciting new products. Protoform's latest Lexan masterpieces come in the form of a hot-looking Saturn SC2 touring sedan and an ultra-detailed F1 B-195. The Saturn touring-car body will enhance your driving pleasure with your "narrow"-chassis Tamiya or Yokomo sedan, while the awesome-looking F1 B-195, with its realistic side dams, will make your Tamiya, Kyosho, or HPI F1 the talk of your club.

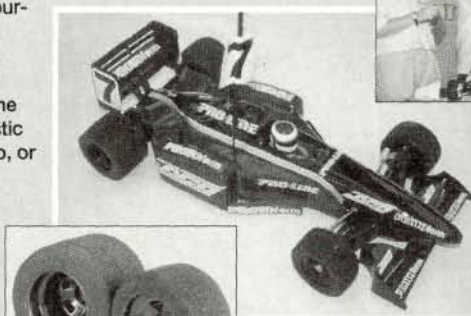
Pro-Line also displayed its new F1 Hawgs, which are of the same diameter as the foam tires they replace, and they provide tons of traction, even on dusty street corners. The added traction will allow you to use hotter modified motors, and you won't have to run to the store as often to replace worn-out tires. The tires are made out of Pro-Line's sticky XTR-M2 compound, and they come with foam inserts. The wheels are sold separately.

Jaco's true and mounted foam tires are now available for Tamiya F1s. It's about time a company offered an extensive line of foam tires for

Todd Mattson from Pro-Line/Jaco/Protoform and his sister Elizabeth Mattson.



Protoform's new, awesome-looking B-195 F1 body decked out with their new F1 Hawgs.



Jaco's new true and mounted F1 Indy tires. Cool!

the Tamiya F1. The tires are mounted on cool-looking wheels, and they can be bolted right on to your F103 chassis without any modifications. The tires come in a wide variety of compounds, including: Green, Blue, Pink, Purple and White, and they're all manufactured to meet Jaco's extremely high standards.

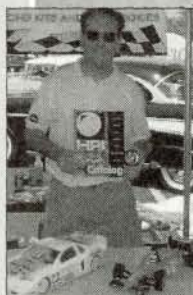
Hobby Products International (HPI)

HPI's* Kent Clausen gave racers and spectators a look at some of the company's hot, new products. HPI has added two new sets of wheels to its extensive line of hop-up wheels for the popular Tamiya and Yokomo touring sedans. The six-spoke touring-car wheels feature soft round edges that will give your sedan that "street neat" look; the seven-spoke wheels not only look awesome, but they're also the lightest ones HPI offers (a truly stylish way to remove un-sprung weight). Both wheels have inner and outer flanges, plus extra stiffening ribs for durability.

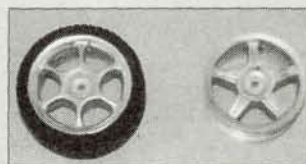
HPI also displayed some really hot-looking new Lexan bodies that were designed to fit the company's soon-to-be-released RS4 4WD touring sedan. The sleek Porsche 911 Turbo and Ferrari F355 are sure to turn heads at parking-lot races all over the country. The bodies are designed to fit extra-low on the chassis, and the attention to detail is (dare I say) Tamiya-like. Without any modifications, both bodies will also fit the Tamiya and Yokomo "narrow" touring sedans, and they come with decals that will give them a concours-winning look.



HPI's new Chevy Astro van and Porsche 911 bodies. Add one of these to your ride, and you'll be the talk of the town.



Kent Clausen from HPI.



HPI's new 6- and 7-spoke wheels.

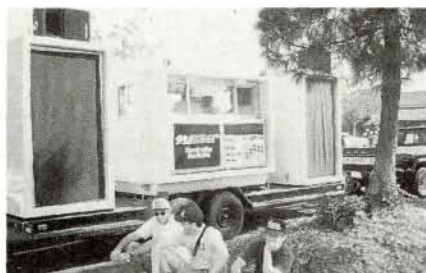


Tamiya set up an awesome display at the Expo.

Tamiya

The folks at Tamiya* displayed their new Daytona Thunder stock car, which is based on the popular C-class chassis, and people took a lot of interest. Like other Tamiya kits, the Daytona's details are stunning, and it's an accurate replica of its full-scale counterpart, right down to the last spoke. The company's new Loctite Nissan Skyline GT-R1 is also sure to become a hot seller. Based on the venerable TAO2 4WD chassis, the car comes with stylish 5-spoke wheels and a totally awesome body that has an adjustable rear wing.

Tamiya's new Fiat Abarth 1000 TCR Berlina Corsa car is based on their all-new, M02 rear-motor, rear-wheel-drive chassis (the same chassis as the Mini Cooper). It comes with a killer body shell that reveals a scale eight-piece engine. Tamiya also showed off their natural-rubber racing tires and offered tips to the participating racers.



The world's largest boom box blasted out rock'n' roll: "What's that you say? I can't hear a thing you're saying." Right: Hollywood Hamilton and his posse. The folks at rocking radio station 99.1 not only play cool music, but they're also diehard R/C racers.

Bolink Legends. That's a lot of racing! Two rounds of Qualifying were sched-



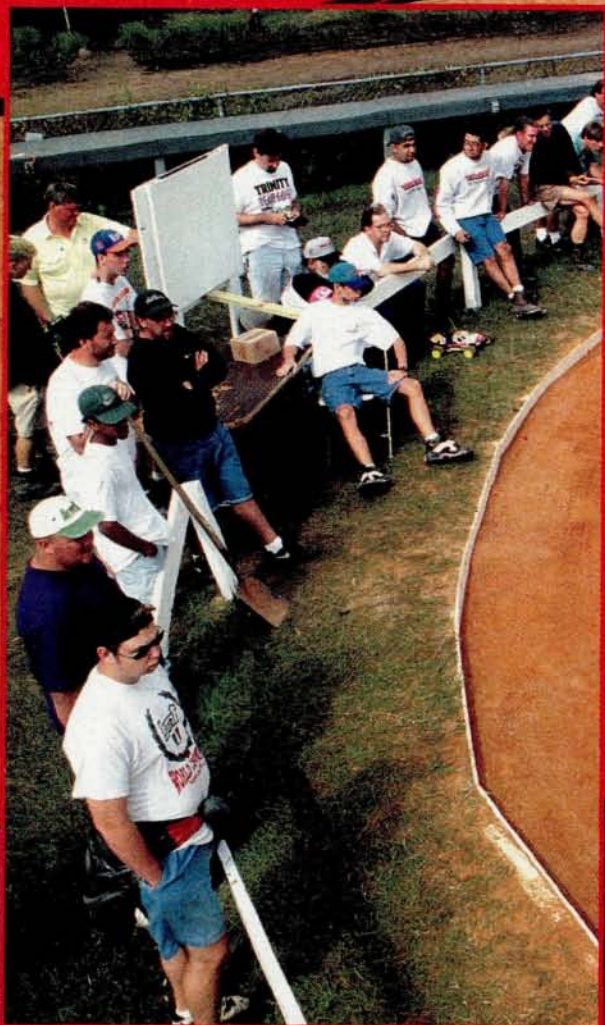
uled, to be followed by a single Main event. Because of the large turnout, however, one of the Qualifying heats had to be scratched, or the event would have gone on for days. The racers didn't seem to mind, and the action continued without any complaints.

The First Annual Hobby Shack/Race Connection Expo was a major success. Hundreds of spectators got a chance to see what R/C car racing is all about; and racers got a chance to "strut their stuff" in front of large crowds; and everyone listened to rock'n'roll under the hot California sun. Hobby Shack is already planning the Second Annual Hobby Shack/Race Connection Expo, and you can bet that it will be even bigger than the first. ■

ROAR

OFF-ROAD NATIONALS

by RICK SCHWARTZ



PHOTOS BY BUDDY McTIGUEOUS

The best seats in the house were at the apex of the first turn.

I'M AN off-road racer at heart, and whenever I get the chance to attend a major event, I do my best to get the head honchos at *R/C Car Action* to let me cover the race. I beg; I plead; I threaten! Fortunately, it worked this time, and I was sent to report on the 1995 ROAR Off-Road Modified Nationals in Savannah, GA. Luckily for me and the 300 racers who participated, it was one dynamite competition.

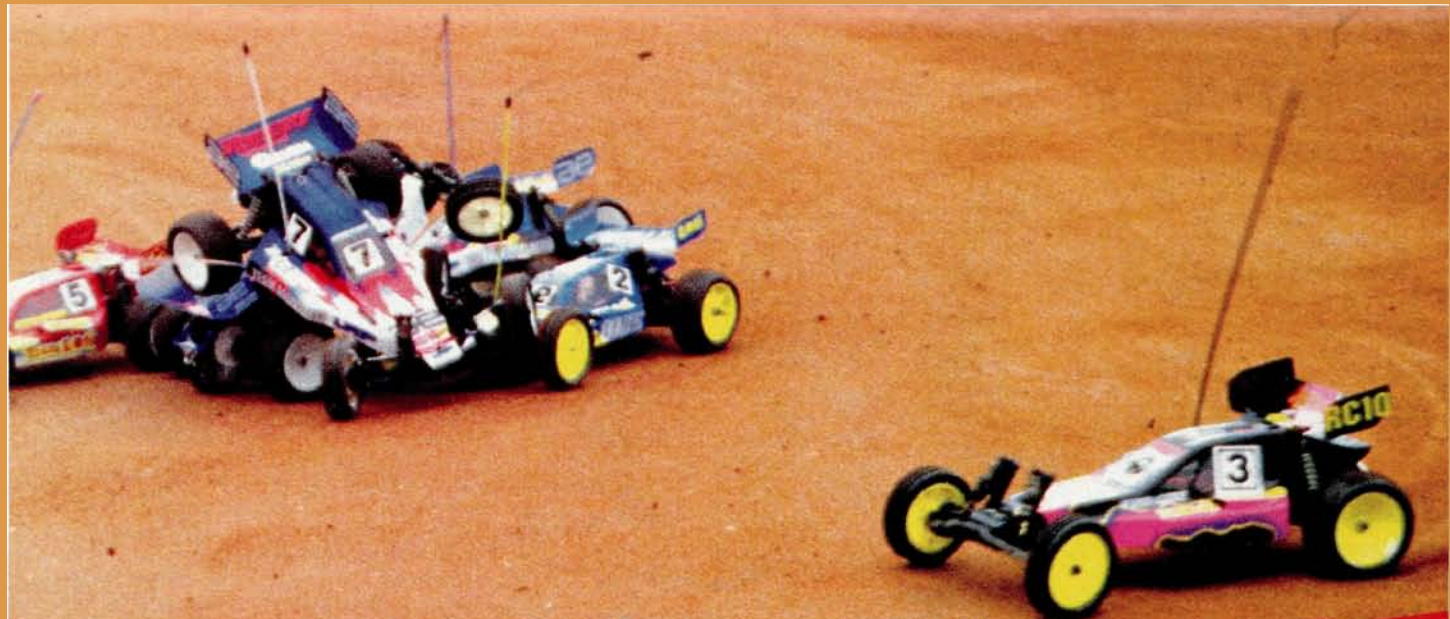
Phil "the Colonel" Hurd and the SCORE club put out the welcome mat and even had paid turn marshals. All the racers had to worry



2WD MODIFIED



The 2WD Modified A-Main winners and Team Trinity/Team Losi driver Brian Kinwald's championship-winning Double-X.



Rip-ROARIN' Racin'

about was working on their cars and hitting the nearby tennis courts after their heats.

THE TRACK

Those who designed this track especially for this race had driving skills in mind: speed was secondary to proper suspension setup. The infield had a lot of twists, turns and bumps that required short bursts of speed and a strong braking finger.

Tire selection wasn't as important as making sure you had the right shock and spring combi-

nation. The crew kept the track well-maintained, but racers in the first heats seemed to turn better times. The only problem with the facility was the thick, black mud that surrounded the track and hampered the racers as they went to and from the pits. (Everyone headed to Kmart to buy rubber boots to slish around in.)

The only complaint I heard about the track was that although many racers got to Savannah a few days early, the course was not groomed daily before the Qualifiers. This did, however, ensure that the racers who arrived early



TRUCK MODIFIED

Truck Modified A-Main winners and Team Trinity/Team Losi driver Brian Kinwald's championship-winning Double-Xt.



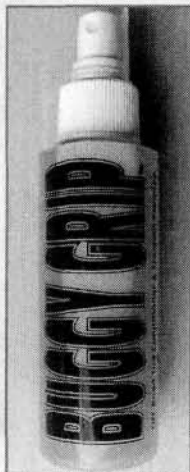
4WD MODIFIED

The 4WD Buggy Modified A-Main winners and Brad Reelf's winning Schumacher Cat 2000 E.C.

What's New in the Pits

A Gripping Story

Always looking to produce products that give racers the winning edge, Trinity Products* has come out with Buggy Grip—a new compound that increases tire traction. Road racers have long used tire softeners to gain traction on slick surfaces. Trinity has transferred that technology to off-road to produce the same results. Just apply Buggy Grip to your tires, let it air dry, and you'll have stickier, softer, high-traction rubber.



Who is this Ackerman Guy?

Ackerman refers to the difference between the steering angles of the inside and outside tires when the vehicle is turning. For their Cat 2000, Schumacher* offers an Ackerman steering mod designed by one of their Finnish team drivers, Teemu Leino. The modification provides a comfortable balance between traction and steering on a low-grip surface. Schumacher must be doing it right, because Brad Reelfs drove his Cat 2000 to the 4WD title. I still don't know who this Ackerman guy is!



The Rubber Meister

You'll always find tire expert Tim Clark of Pro-Line/Protoform* at the off-road races, and this time, he showed some new patterns and compounds that were designed to improve traction and handling. A prototype buggy step-pin designed especially for this race has the same profile as the flat and round Fuzzie but is made of M2 compound—their softest. Made to be used on very hard-packed clay, the Square Fuzzie won the Worlds. Finally—also made of M2 compound—the Traction Plus is a reinforced cross-step-pin for cars and trucks.

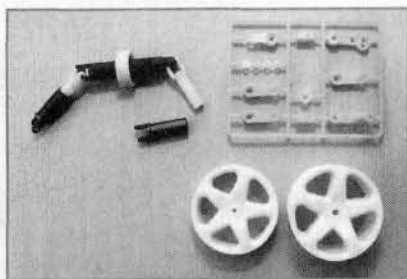
Protoform also had a couple of new bodies on the track—the Rambunctious ET for the RC10T2, and their new Double-XT Nevada is also now available.

Winners' Chart

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires
1	8	Brian Kinwald	Losi	Trinity	Trinity	Novak	Airtronics	Jammin	Losi
2	9	Jason Ruona	Assoc.	Reedy	Reedy/Orion	LRP	Airtronics	Assoc.	Pro-Line
3	4	Greg Hodapp	Losi	Trinity	Trinity	Tekin	Airtronics	Jammin	Losi
4	3	Mark Francis	Assoc.	Reedy	Orion/Reedy	LRP	Airtronics	Assoc.	Losi/Pro-Line
5	6	Sohrab Tavakoli	Losi	Peak	Orion	Novak	Airtronics	Jammin	Losi
6	10	J.D. Beckwith	Assoc.	Reedy	Reedy/Orion	Novak	Airtronics	Assoc.	Losi
7	5	Derek Furutani	Losi	Maxtec	World Class	Tekin	KO Propo	Jammin	Losi
8	1	Greg Dennet	Assoc.	Reedy	Orion/Reedy	LRP	Airtronics	Assoc.	Pro-Line
9	7	Mark Pavidis	Assoc.	Reedy	Reedy/Orion	LRP	Airtronics	Assoc.	Losi/Pro-Line
10	2	Barry Baker	Losi	Maxtec	World Class	Novak	Airtronics	Jammin	Losi

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires
1	2	Brad Reelfs	Schumacher	Reedy	Reedy	Novak	Airtronics	Schumacher	Pro-Line
2	1	Barry Baker	Yokomo	Maxtec	World Class	Novak	Airtronics	Yokomo	Losi
3	6	Rick Hohwart	Yokomo	Peak	Orion	Novak	Futaba	Yokomo	Pro-Line
4	5	Anthony Andrews	Yokomo	Peak	Orion	Tekin	Airtronics	Yokomo	Pro-Line
5	8	Bret Reelfs	Yokomo	Reedy	Reedy	Novak	Airtronics	Yokomo	Pro-Line
6	4	Greg Dennet	Yokomo	Reedy	Orion/Reedy	LRP	Airtronics	Yokomo	Pro-Line
7	3	Derek Furutani	Kyosho	Maxtec	World Class	Tekin	KO Propo	Kyosho	Losi
8	7	J.R. Mitch	Schumacher	Maxtec	Stealth	Novak	Airtronics	Schumacher	Losi
9	9	Mike Hoffpauir	Yokomo	Peak	Orion	Novak	Airtronics	Yokomo	Pro-Line
10	10	Kurt Wenger	Schumacher	Reedy	Airtronics	Tekin	Airtronics	Schumacher	Pro-Line

Fin.	Qual.	Name	Chassis	Motor	Battery	ESC	Radio	Body	Tires
1	1	Brian Kinwald	Losi	Trinity	Trinity	Novak	Airtronics	Losi	Losi
2	5	Greg Hodapp	Losi	Trinity	Trinity	Tekin	Airtronics	Losi	Losi
3	7	Jason Ruona	Assoc.	Reedy	Reedy/Orion	LRP	Airtronics	Assoc.	Pro-Line
4	3	Mark Pavidis	Assoc.	Reedy	Reedy	LRP	Airtronics	Assoc.	Pro-Line
5	8	Mark Francis	Assoc.	Reedy	Reedy/Orion	LRP	Airtronics	Assoc.	Pro-Line
6	2	Scott Brown	Losi	Trinity	Trinity	Novak	JR	Losi	Losi
7	6	Sohrab Tavakoli	Losi	Peak	Orion	Novak	Airtronics	Losi	Losi
8	10	J.R. Mitch	Losi	Maxtec	Stealth	Novak	Airtronics	Losi	Losi
9	9	Paul Wynn	Assoc.	Reedy	Reedy/Orion	Tekin	Airtronics	Assoc.	Pro-Line
10	4	J.D. Beckwith	Assoc.	Reedy	Reedy/Orion	Novak	Airtronics	Assoc.	Pro-Line



Five-Spoke Wheels and Sliders

Back from the past are Team Losi's* sliders. Now standard equipment on their basic truck and car kits, the sliders will be sold as an option for the Double-X and Double-Xt. Used in Savannah, the sliders seemed to provide better performance when the track became bumpy during practice.

Hot new five-spoke front and rear buggy wheels also made their debut. Light, but very, very strong, the wheels can be used on a loose dirt track, where the clay won't become packed.

Finally, the last new Losi part I saw was a steering arm with new geometry that provides additional steering.

DEBUT OF THE GOLD DUST TWINS!



Trinity and Team Losi chose the '95 ROAR Off-Road Nats to debut their newest team driver, Greg Hodapp. Teamed up with Brian Kinwald as the "Gold Dust Twins," Hodapp brings a lot of racing experience to the table.

Hodapp, who's the current NORRCA national champion and has won such prestigious races as the Reedy International Race of Champions and the Cactus Classic, proved that he's a worthy addition to the Trinity team by finishing third in 2WD Modified and taking the runner-up spot in Truck Modified at the ROAR Nats. Hmmm.... Could friendly rivalry between Kinwald and Hodapp cause each to go even faster? The competition should hope not!

didn't have an unfair advantage over those drivers who couldn't get to the site until the start of the race.

QUALIFYING

As usual, the main competition was between the two "big guns" in the industry, Losi and Associated. There was a great deal of interest in the new Associated RC10B2 and whether or not Brian Kinwald would repeat his stellar performance at last year's ROAR Nats.

• **2WD Buggy.** The top 30 drivers all turned in their best times during the third round on Saturday morning. Greg Dennet was the TQ (10 laps in 4:11.43); Barry Baker was a hair behind (10/4:11.65), and Mark Francis was third (10/4:11.77)—all separated by less than 1/3 second. The field was evenly divided: five Losi, five Associated.

• **4WD**—the hottest cars on the track. The early rounds again proved to be the fastest as the first runs on Friday and Saturday produced the best times. Barry Baker was the man to beat. His TQ time of 10 laps in 4:03.91 was 4 seconds faster than that of second-place qualifier Brad Reelfs. The third spot went to Derek Furutani, who was 1/2 second behind with 10/4:07.83.

• **Trucks.** Showing the rest of the field his dust, Brian Kinwald TQ'd with a time of 10/4:14.20; Scott Brown was almost 2 seconds off the pace with a 10/4:15.92. Always a driver to be reckoned with, Mark Pavidis took third with a 10/4:16.30. Again: five Losi, five Associated.

THE MAINS

The three-A-Main format was used to decide the champions. Put simply: every class would race three times, and points would be awarded for finishing position.

Only the drivers' top two finishes would be counted. In the event of a tie, the outcome would be decided by total times and laps. This system isn't used at all ROAR Nationals, but it allows a driver who has one bad run or is bumped during a race to come back and try again.

• **2WD**—a triumphant return for Kinwald. Although he had to start from eighth, he drove like a man possessed and finished first in heats one and two. Because he was assured of victory by these two first-place finishes, he sat out the third heat to let the other racers compete for the rest of the spots. Jason Ruona used two second-place showings to take the number-two spot, and Greg Hodapp pulled a second and third to finish number three. The only controversy was TQ Greg Dennet's one-lap penalty for rolling forward at the start of heat one. That moved him from second to 10th and opened up the field.



WHO IS THIS GUY?

When we speak with reverence of the "immortals" of R/C racing, the names "Kinwald, Pavidis, Lett, Hohwart, Halsey, Johnson" and "Tavakoli" come to mind. Who is that last guy?—Sohrab Tavakoli. Well, maybe he isn't a household name yet, but he's moving up the list. Recently "discovered" by Team Losi, Sohrab came from nowhere to win three out of four classes at the NORRCA Nats. He was even in the A-Main for 2WD at the Worlds. At this year's ROAR Nats, he was in both 2WD and Truck A-Mains. Only 16 years old and driving out of the SoCal Raceway in Garden Grove, CA, Sohrab can only get better with time. You may not be able to pronounce his name yet, but if he continues to drive at his present level, you will.

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ROAR OFF-ROAD NATIONALS



Pro-Line's Tim Clark shows us how gooeey mud can be! Don't stand too long in one spot, Tim!

• **4WD.** TQ Barry Baker won the first heat with second qualifier Brad Reelfs close behind. Baker had a disastrous second heat and finished ninth. Steady Brad again came in second, with long shot and newcomer Anthony Andrews finishing first. The third heat was the deciding one, and Brad, driving his Schumacher Cat 2000, pulled out all the stops. He came in first and parlayed his 1-2 finishes into a winning combination. Barry Baker managed to come in third and take second overall. The third spot went to Rick Hohwart with a second and a fourth place. The best time turned in the three heats belonged to Reelfs, who turned a 10/4:10.66.

• **Mod Truck.** It looks as if North America again belongs to Brian Kinwald. Starting from his TQ position, he won the first two heats to settle the title early. Greg Hodapp used two, second-place finishes to claim the number-two spot, and Florida's Jason Ruona took advantage of Kinwald's sitting out the last heat to finish first in that race and secure the third position.

Although it isn't an official ROAR title, Colonel Hurd and his club gave a special Overall Champion Award to the driver who had the best performance at the Nationals. Guess who? The one and only Team Trinity/Team Losi's Brian Kinwald took home the honors.

I love going to these off-road races. You get to talk to "Pops" Losi, Gene Hustings, Mike Reedy, Neil McCurdy, Jay Halsey, Jack Johnson, Tim Clark and a host of others. You can also meet racers from all over the country, talk shop with new manufacturers and see new products. It's fun. And that's what racing is supposed to be about.

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*Addresses are listed alphabetically in the Index of Manufacturers on page 176.

**NEW
PRODUCT
WATCH**

TRACTION²

These additional rectangular "bars" attached to the sidewall of Square Fuzzie tires help improve traction through turns.

by Frank Masi

Pro-Line Square Fuzzies

REMEMBER THE EARLY DAYS of off-road racing? Do you recall ever giving much thought to tire selection? There were, at best, two types of tire that worked and that was that. Today, tires are a much larger part of the racing equation. Off-road cars and trucks are now capable of incredible performance, but for them to live up to their full potential, you have to pick the right tires for each type of track surface.

At no time is tire selection more critical than at the IFMAR Off-Road World Championships. At this level of competition, there's no

room for error; if you don't have the right setup—of which tires are a major part—you don't make the show.

At the '95 Worlds, held at Japan's Yatabe Arena, Yokomo* had the home-track advantage; their T-51 "dash pin" tires seemed the only ones that would hook up on the track's damp, hard surface.

When the track was somewhat dry, many drivers experimented by running a new rear tire that Pro-Line* has developed called the "Square Fuzzie." This new tire provided more side-bite than the Yokomo tires, so drivers could drive more consistent lines.

As a result, many of the 2WD finalists, including eventual winner Matt Francis,

Pro-Line's new Square Fuzzies were the tires to beat at the '95 IFMAR Off-Road World Championships; 2WD winner Matt Francis and 4WD winner Mark Pavidis used them.

ran Square Fuzzies for the A-Mains. Also, all of the 10 4WD A-Main drivers used Square Fuzzies, including, of course, new 4WD World Champ Mark Pavidis.

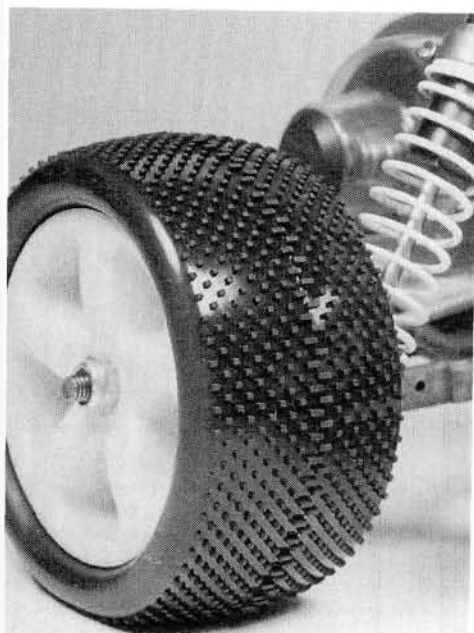
SQUARE ROOTS

The design of the Square Fuzzies resulted from engineer Tim Clark's experience at the warm-up race held in Japan just prior to the World Championships. At the time, the fastest drivers at the Yatabe Arena track were using foam tires on their off-road buggies but, because these cars tended to fly off the track and hit spectators, the foam tires were quickly outlawed for sanctioned competition. The challenge was to make a tire that could provide the traction of a foam tire on Yatabe's damp, doughy surface and retain the stability of a conventional, treaded tire.

Yokomo developed a tire that worked extremely well; it had a tall, wide profile and tiny block treads. Tim's first effort also used a taller profile sidewall and a block tread, but the tires just didn't hook up as well as the Yokomos. Back in the U.S., exhaustive testing with the help of Team Associated's Mark Pavidis revealed that, on hard surfaces, low-profile tires consistently provided faster lap times than their tall-profile counterparts. Tim's goal was to develop a low-profile tire that incorporated a block-type tread.

FUZZIE LOGIC

To understand why the new Square Fuzzie works so well on dry, hard-packed surfaces, first you have to understand how a "micro-pin" tire works. Tires such as Fuzzies pro-

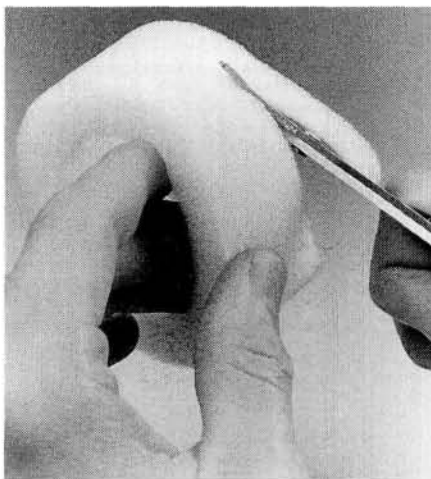


vide traction by actually scraping the dirt; tires that have large spikes must penetrate the dirt to gain traction. On hard surfaces, large spikes and knobs tend to fold over because they can't dig into the rock-like dirt. Fuzzie-type tires rely heavily on the stickiness of the rubber from which they're molded; the tires actually can stick to the dirt!

Square Fuzzies differ from Pro-Line's standard Fuzzie tires in several ways. Both tires use the same, low-profile "carcass," or body design; however, instead of tiny, round spikes, the Square Fuzzie tire has hundreds of small, square blocks (about 0.040 inch square). In fact, there are about one-third more blocks on a Square Fuzzie than there are spikes on a comparable Fuzzie tire. This gives the Square Fuzzie a distinct advantage on certain types of surface, particularly on extremely hard-packed dirt that has little or no dust (or "marbles") on the surface.

The tiny blocks on the Square Fuzzie boost forward and side-to-side traction. Tim added small, staggered "bars" to the center section of the tire's tread. These help provide additional traction during hard acceleration as the tire expands. The bars also provide additional side-bite under hard cornering.

As for durability, both Square and regular Fuzzie tires are molded out of Pro-Line's softest, stickiest rubber (M2, but expect Square Fuzzies to have a slightly longer life than regular Fuzzies. This is mostly because the Square Fuzzie's tiny blocks are closer together, so the weight of the vehicle is more evenly

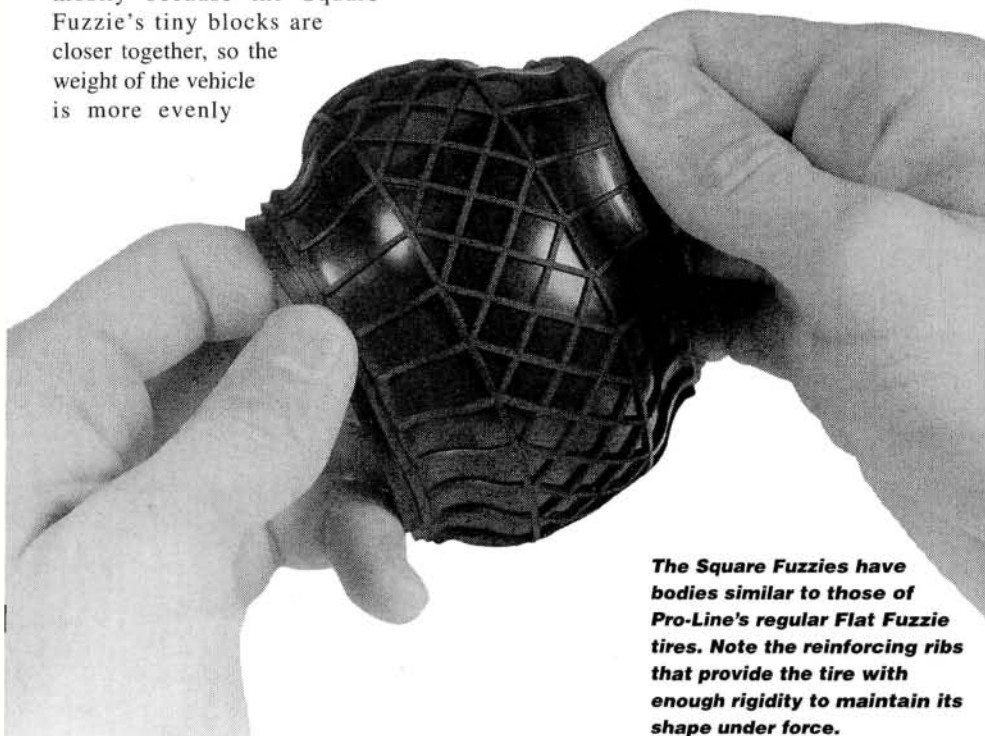


To prevent the foam from bunching up and distorting the tire's shape, trim the edges of the foam inserts before installing them inside the tires.

distributed throughout the tire's tread.

Without doubt, Square Fuzzies were the hot tire at the Worlds, but under which conditions should you run them? According to Tim, you should try them when your regular Fuzzies are working well and the track is dry and has little, if any, dust or loose dirt. "In general, regular Fuzzies are a more forgiving tire than the Square Fuzzies," says Tim, "but if the conditions are right, watch out!"

*Addresses are listed alphabetically in the Index of Manufacturers on page 176.

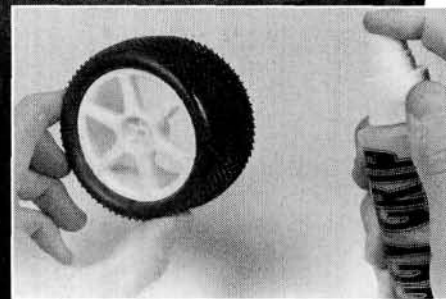


The Square Fuzzies have bodies similar to those of Pro-Line's regular Flat Fuzzie tires. Note the reinforcing ribs that provide the tire with enough rigidity to maintain its shape under force.

You may have heard rumors that some racers soak their off-road tires in turpentine to make them softer. Although I've never actually done that, I can see the reasoning: softer tires grip better. Why else would companies such as Pro-Line develop rubber compounds as soft as M2?

Instead of messing with turpentine, you can now buy Trinity's* new Buggy Grip spray at your hobby shop. Spray this stuff on your tires (it seems to work best on Pro-Line's M2 or Losi's* Silver compound), and let it soak in. You'll definitely notice that your tires are more "goosey," and if you're an astute driver, you should notice a slight increase in grip on hard-packed dirt. If you apply several coats of Buggy Grip, your tires will become even softer.

I've used Buggy Grip for several weeks, and I can verify that it really does soften tires. The only trick is to wash your tires thoroughly (mix a little Simple Green or Armor-All Cleaner in a bucket of water) before you apply the spray. The "boosted" traction seems to last for only one run, after which



you'll need to re-apply the Buggy Grip. The downside to using turpentine, Buggy Grip, or any other chemical that softens rubber tires is that the tires will wear more quickly; so, be aware.

TRACTION IN A BOTTLE



A look back at the trends, people and events that have shaped our hobby

CAN YOU believe it has been 10 years already! Yes, that's right, folks; your favorite magazine (hey, it better be!) is now celebrating its 10th anniversary. Over the years, we've seen a lot of crazy things, and we decided to take a little trip back through time to remember some of those early days as well as some of the more recent ones. So, strap yourself in and get ready to blast back in time, R/C-style.

1986

The creative juices were flowing at Air Age Publishing. In the winter months, R/C Car Action was being primed for the newsstand—for quarterly production. The driving forces behind the first issue were publishers Louis and Yvonne DeFrancesco and our art director Alan Palermo.

Four successful issues covered such topics as how to paint Lexan bodies, how suspension systems work, how to hop up electric cars, make your own track and understand gear ratios.



TVs are tuned to "The Bill Cosby Show" and "Family Ties."



TAMIYA BRUISER



▲ This '32 Deuce built by Gary Conley features one of his working V8 engines.

Two of our most popular columns, "Troubleshooting" and "Pit Tips," were launched.

NOTABLE CAR RELEASES

ASSOCIATED RC10, RC121 AND RC500; TAMIYA BRUISER, HORNET, WILD ONE AND ROAD WIZARD; KYOSHO OPTIMA AND ASSAULT; BOLINK INVADER; ROYAL RIPPER; YOKOMO SE; MARUI BIG BEAR.

TAMIYA HORNET



YOKOMO SE



One of our biggest features was a massive monster truck shootout featuring nine trucks!—the Marui Big Bear; Tamiya's Blackfoot, Lunchbox, Midnight Pumpkin, Bruiser, Clod Buster and Monster Beetle; the Kyosho Big Brute; and MRP's High Roller.



NOTABLE PRODUCT RELEASES

NOVAK 1X SPEED CONTROL; JR ALPINA PCM RADIO.

"Scoping Out"—a monthly column that looks at R/C electronics—was launched.

Gas was 93 cents a gallon.

First class postage stamp was 25 cents.

In July, we kicked off the first of our annual "Top 10" issues.

We produced our first "celebrity" cover—with Clint Eastwood, who was accompanied by Jay Halsey. If you weren't around then, Jay works with major movie and TV studios; whenever they need an R/C stunt, he's their man. Jay worked on the set of one of Clint's movies—"The Dead Pool," in which a mad bomber blew people up with the help of a crazy R/C Corvette (actually, an RC10).





"We Are the World"—winner of the "Song of the Year" grammy—is broadcast simultaneously on all stations across the country.

NOTABLE PRODUCT RELEASES

AIRTRONICS XL2P RADIO;
FUTABA MAGNUM AND
MAGNUM JR. RADIOS.

The Statue of Liberty turns 100 years old, and she gets a well-deserved facelift.



Published six times a year, we were on a roll and had jumped from 114

pages to 154 pages by the end of the year. Publisher Louis DeFrancesco (right) and Editor Chris Chianelli (left) give us the thumbs up.



1987

BLAST FROM THE PAST

One of the things that has changed since the early days of Car Action is the level of knowledge throughout the hobby. The year was 1987, the hobby was still in its infancy, and no one really knew where it was going. Here's a sample of the advice we were giving to our readers in 1987. It's an excerpt from "The Starting Line" column in our August issue. Enjoy!

Q. Are metal rims better for cars?

A. If you're racing, we feel this is one area where metal rims excel.

Q. Why are metal rims only important in racing?

A. In racing, if you don't finish, you can't win. While plastic rims do not actually break, they can chip on the sides and lead to the shredding of the rubber. Metal rims resist this chipping.

Q. Are there other advantages to metal rims?

A. Metal is heavier than plastic, so it acts as a flywheel to keep the car on an even keel. It also acts to absorb the power from a motor smoothly. Yes, metal rims also look great!

As you can see, we're willing to poke a little fun at ourselves...



Congressional hearings into the Iran-Contra arms scandal begin; "Olliemania" sweeps the nation.

The February issue was a funny milestone; Chris Chianelli appeared (for the first time)—on the cover, sporting a lime green sweat-shirt, leather pants, red-frame glasses, a headband and permed hair. What were we thinking?



In the April issue, Chris debuted "Inside Scoop," and the world of R/C news reporting hasn't been the same since.

Our features included a massive monster-truck shootout (there were only three trucks; the Blackfoot, the Marui Big Bear and the Varicom Big Grizzly) and Project Grasshopper, and we published two special issues—one for sprint cars and one for off-road.



MARUI BIG BEAR

ASSOCIATED RC10



KYOSHO OPTIMA



Project Frog leaps into being Car Action's first "Project Car".

NOTABLE PRODUCT RELEASES

KO PROPO EX-5 AND EX-7 RADIOS;
FUTABA MAGNUM SPORT RADIO; NOVAK
NESC-4 SPEED CONTROL; AIRTRONICS
SR-2P RADIO; TEKIN 850 PEAK CHARGER
AND EFC 190 SPEED CONTROL.

Red M&Ms return to the mix after an 11-year banishment.



1988

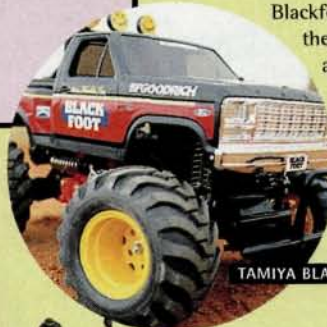
Car Action took the big leap—monthly production! Our highest page count was 210 pages.

NOTABLE CAR RELEASES

KYOSHO TURBO OPTIMA, STINGER,
BIG BRUTE AND ULTIMA; TAMIYA
MONSTER BEETLE AND BLACKFOOT;
ASSOCIATED RC12L.

One of the best-selling kits was released: the Tamiya

Blackfoot. Quickly thereafter, many aftermarket companies started to produce hop-ups for this mighty truck.

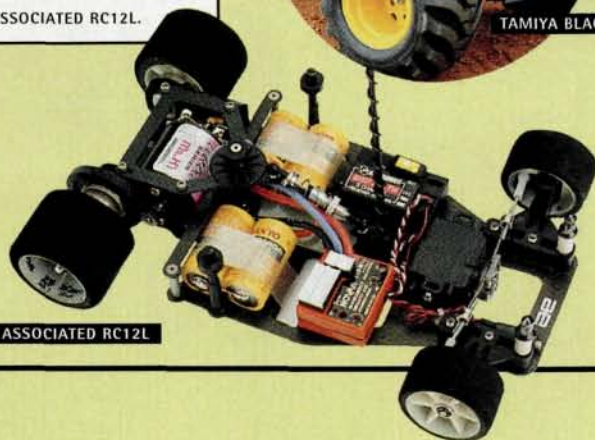


TAMIYA BLACKFOOT



FUTABA MAGNUM SPORT RADIO

One of the hottest innovations was the three-step mechanical speed control equipped with BEC (which helped eliminate the need for those 4-cell AA battery packs in your car or truck).



ASSOCIATED RC12L



KYOSHO ULTIMA

KYOSHO BIG BRUTE

1988

FORMULA 1 CARS



▲Dirt-oval and Indycars were all the rage, and we dedicated a special issue to each of them.

▲We presented our first Car of the Year award, and it went to Team Associated's RC10.



U2's "The Joshua Tree" is crowned "Album of the Year."

KYOSHO OPTIMA MID SE



NOTABLE CAR RELEASES

TAMIYA LUNCH BOX, CLOD BUSTER AND F1 CARS; KYOSHO BURNS AND OPTIMA MID SE; SCHUMACHER CAT-XLS; OFNA PIRATE RS; MRP HIGH ROLLER.



TAMIYA LUNCH BOX

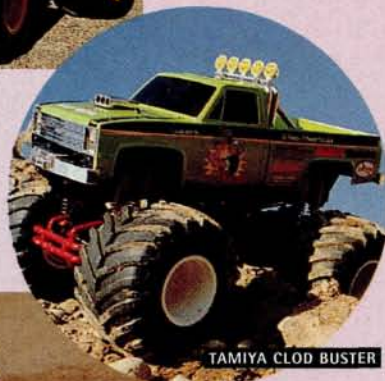


George Bush and Dan Quayle are elected President and Vice President.

KYOSHO BURNS



TAMIYA CLOD BUSTER



The B-2 Stealth Bomber makes its first flight.

1990

We reached a staggering 242 pages! "Inside Scoop" made the jump to color and was on its way to becoming one of the most-read columns.

Our first interview, and it was with Joel Johnson.



NOTABLE CAR RELEASES

KYOSHO TURBO ULTIMA AND MAXXUM (FRONT-WHEEL DRIVE); AYK PRO RADIANT; ROYAL CRUSHER; SCHUMACHER TOP CAT; YOKOMO YZ-10; TRAXXAS BULLET.

In April, four lucky readers became part of Car Action's history when we chose their creations for our newest column—"Readers' Rides."

NOTABLE PRODUCT RELEASES

FUTABA MAGNUM PCM 1024, TEKIN BC100, COMPETITION ELECTRONICS TURBOCHARGER, NOVAK PEAK PLUS CHARGER.



The silver screen sizzles with "Batman."



TEAM LOSI JR-X2



KYOSHO DOUBLE-DARE



▲Masami Hirotsuka makes a clean sweep at the '89 IFMAR Off-Road Worlds and takes home the 2WD and 4WD titles.

▲Jay Halsey makes the switch from Team Associated over to Team Losi after the '89 IFMAR Worlds.

The Blackfoot was still king of the trucks, but on the horizon were "buggy-to-racing truck conversions." Thanks to John Gudvagen Jr. (below) and J.G. Mfg. buggy-to-truck conversions, you could turn your RC10, Ultima, Optima or JR-X2 buggy into a racing truck that

▼would pretty much spank the 'Foot. With that in mind, a feature in our May issue showed you how to turn your Blackfoot into a more reliable and "race-ready" vehicle.



On a roll and rapidly gaining momentum (like the rest of the industry), Car Action was getting bigger and better each time out of the gate. Our page count went as high as 214 pages. Hot topics were monster trucks, 1/4-scale cars and super-speedway cars.

1989



▲From top left counterclockwise: Project Blackfoot, Project Behemoth, and Project Mack Attack.



▲ We reported on truck pulls and super-speedway events, and we also started "Homebuilt Projects." ▼



In the January issue, we gave you a sneak peek at the IFMAR Off-Road Worlds and then followed with an in-depth report on it in February. Our Worlds coverage was a turning point in the way we saw R/C racing; the racing segment was no longer a hobby; it had become a full-blown sport.

Rollerblades become a leading cause of broken bones.



◀ Our second cover celebrity—RoboCop! Reader David Semanik of Parma, OH, made a hybrid Traxxas/RoboCop vehicle and we just had to have the protector of the innocent himself pose with it.



NOTABLE CAR RELEASES

KYOSHO LAZER ZX, OUTLAW RAMPAGE, TURBO BURNS AND USA-1; TRAXXAS SLEDGEHAMMER AND RADICATOR; SCHUMACHER PRO CAT; TEAM LOSI JR-XT; ASSOCIATED RC10L, RC10 GRAPHITE AND RC10 CHAMPIONSHIP EDITION.

KYOSHO USA-1



KYOSHO OUTLAW RAMPAGE



KYOSHO TURBO BURNS



▲ The hottest vehicle of the year was Team Losi's JR-XT. It brought new standards to the racing truck division.



◀ In January, we launched the "Reader's Ride of the Year" contest, and we recognized Larry Maties of Hilton Head, SC, for his creativity in building his "Orange Crush" tank truck. From there on out, we received an endless stream of highly creative entries.

TRAXXAS SLEDGEHAMMER

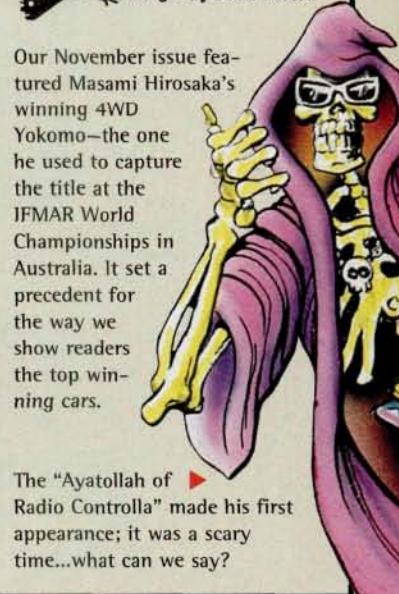


The Thunderdrome event—first featured in our January issue—turned out to be the biggest superspeedway extravaganza ever seen in R/C.

NOTABLE PRODUCT RELEASES

TEKIN BC210 CHARGER, TRINITY TRIAD HAND-WOUND MODIFIED MOTORS AND HAMMER TIME STOCK MOTOR (A TAMPER-PROOF MOTOR); TWISTER MINI-LATHE; NOVAK 410M1C AND 410MXC.

Song of the year is "Wind Beneath my Wings" by Bette Midler.



Our November issue featured Masami Hirosaka's winning 4WD Yokomo—the one he used to capture the title at the IFMAR World Championships in Australia. It set a precedent for the way we show readers the top winning cars.

The "Ayatollah of Radio Controlla" made his first appearance; it was a scary time...what can we say?

1991

We're five! Still doing well, we looked forward to doing this type of article in another five years. Our page count eclipsed our previous record when we weighed in with a whopping 258 pages!

Channel surfers stop to watch "Northern Exposure" and "Home Improvement."



After its initial blow-up at the IFMAR Off-Road Worlds in Australia, the 2.2-versus-2.1 buggy-wheel controversy heated up.



▲ Robert Haverfield's "Landmaster" wins our Reader's Ride of the Year award. Project Bulldozerhead wreaks havoc on terra firma.



Buster Douglas KO's "Iron" Mike Tyson and wins the heavyweight championship title.



One of the year's major debates was about the merits of 1200, 1400 and the much more expensive 1700 SCR batteries.

Associated's RC10 Team Car was released—adding fuel to the fire in the buggy wars.

Soon afterward, the RC10T showed up and promptly loosened the stranglehold that the ▼ Losi JR-XT had on the burgeoning truck class.

U.S. and Allied Forces defeat Iraq after air bombardment and a 100-hour ground war.



Editor Steve Pond gathers all the radios for our huge monster-truck shootout...we had to rescue all the vehicles from a nearby police station after they were stolen out of our photographer's car. Thankfully they nabbed the criminal; we got the cars



back and we were able to continue with the shootout.





1991

We previewed prototype cars that would run in the upcoming IFMAR Off-Road Worlds. They included Team Losi's Pro-SE (then called the Double-X), Team Associated's Stealth car, Schumacher's Cougar and the Kyosho Lazer ZX-R.

We voted Team Losi's Junior Two our "Car of the Year."

In the April issue, we chose the first "Truck of the Year"—Team Losi's new JR-XT.

Team Losi unveiled the JR-X-Pro—a buggy that set its sights on being the top 2WD racer.

NOTABLE PRODUCT RELEASES

AIRTRONICS CALIBER 3P; COMPETITION ELECTRONICS TURBOMATCHER; TRC CAPPED TIRES; TEKIN ESC 700; ASSOCIATED STEALTH TRANSMISSION; NOVAK 610-RV REVERSING ESC; 410-M5, DIGI PEAK AND DIGI PEAK PLUS; TRINITY SLOT MACHINE; COMPETITION ELECTRONICS TURBOTHIRTY; TEKIN PRO DYNO.

NOTABLE CAR RELEASES

TEAM LOSI JR-X-PRO, JR. T AND JUNIOR TWO; TEAM ASSOCIATED 10LSS, RC10LSS, RC10 TEAM CAR AND RC10T; TAMIYA BULLHEAD; KYOSHO OUTLAW RAMPAGE PRO, USA-1 AND TRIUMPH; TRAXXAS BLUE EAGLE; OFNA PIRATE M1.



TEAM LOSI JR. T



KYOSHO TRIUMPH

1992

The 2nd Annual Kyosho World Challenge (Champaign, IL) had more than 100 racers and an additional 1/10-scale truck class. After years of being popular overseas, gas racing was beginning to catch on in the U.S.



Trinity released the Green Machine stock motor, which blew everyone away with its performance because previous stockers just couldn't compare.

Democrat Bill Clinton is elected President, ending a 12-year Republican White House reign.

The Novak 410 HPC entered the ESC market.



Kent Clausen's highly modified Team Associated 10LSS goes on to win the Insane Speed Run at the Thunderdrome with an impressive 75.92mph run.

TAMIYA NISSAN SKYLINE GT-R



We got a glimpse of Tamiya's first sedan: the Nissan Skyline GT-R. Based on the TA01 chassis, it was a small sign of things to come....

Joel Johnson earned his fifth victory at the Cleveland Indoor Champs (no one else has managed to win more than twice in the race's 11-year history).

Tekin countered the Novak HPC with their 410K program-mable ESC.



Tamiya Japan formed Tamiya America in Aliso Viejo, CA, and the company re-entered the U.S. market with a vengeance.

NOTABLE PRODUCT RELEASES

JR R-756 RADIO; TEKIN 411-K ESC; TRINITY GREEN MACHINE STOCK MOTOR; COMPETITION ELECTRONICS TURBODYNO; PRO-LINE XT-R COMPOUND TIRES; DURATRAX LX-T AND RC10T GAS CONVERSIONS; MIP CVDS

"Silence of the Lambs" is served up an Oscar—with some fava beans and a nice Chianti!

NOTABLE CAR RELEASES

SCHUMACHER NITRO 10; TRAXXAS TRX-1; KYOSHO LAZER ZX-R, USA-1 NITRO CRUSHER, INFERNO AND INFERNO DX; YOKOMO WORKS '91; TEAM LOSI JR-X-PRO SE AND LX-T; MUGEN SUPER SPORT; TAMIYA NISSAN SKYLINE GT-R; SCHUMACHER BOSSCAT.



"Beavis and Butthead" premieres with their first episode: "Frog Baseball." That's cool...huh...huh!



Kunio Dudgeon released his RC10T gas-conversion kit, and it quickly set the tone in 1/10-scale gas-truck racing. At the time, it was by far the best vehicle to go gas-truck racing with.



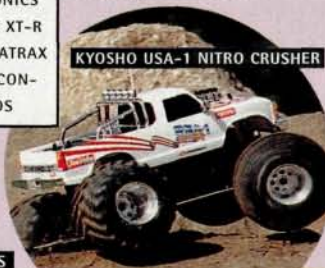
We "warped back in time" to check out this cool Tamiya Sand Scorchers.

This wild Batmobile built by Ewald Schuster won Readers' Ride of the Year.

Our Car of the Year award went to Team Associated's RC10 Team Car; Truck of the Year award went to Team Associated, too—for their RC10T.

1993

Team Losi's Kyle Reed swept the ROAR Off-Road Nats in the 2WD Mod and 2WD Stock classes with Losi's new Pro-SE.



KYOSHO USA-1 NITRO CRUSHER

In April, we checked out Masami Hirosaka's IFMAR Worlds-winning Associated RC10 Stealth car; we also had an in-depth interview with the champ himself.



KYOSHO LAZER ZX-R



In January, we gave our readers a look at MRC's new World Scale vehicles. Slightly larger than 1/8-scale trucks and buggies, they were completely different from anything else on the market.

Joel Johnson won the first 1/10-scale IFMAR On-Road Worlds in Pomona, CA, using a prototype Trinity Evolution 10.



"Seinfeld" tops the TV charts and Kramer still doesn't have a first name.



▲ Parking-lot racing is mentioned for the first time in our September issue. From there on out, the category exploded!

Our Car of the Year was the Kyosho Inferno.

The Car Action Truck of the Year award went to Team Losi's LX-T.

Team Losi debuted their 3-gear Double-X tranny at the ROAR Truck Nats in Savannah, GA.

NOTABLE PRODUCT RELEASES

KYOSHO LAPBOY; TRINITY EX-TECH MODIFIED MOTORS.



TRAXXAS TRX-3



MUGEN SUPER SPORT '93

NOTABLE CAR RELEASES

MRC WORLD SCALE—BAJA KING, THUNDER KING, AND DESERT THUNDER; MUGEN SUPER SPORT '93; TRINITY EVOLUTION 10 AND EV10SS; TRAXXAS NITRO HAWK, LS-II AND TRX-3; TAMIYA MOUNTAINEER; BOLINK LTO PRO; KYOSHO INFERNO ST, PIRATE RS, MUGEN ATHLETE.



TAMIYA MOUNTAINEER

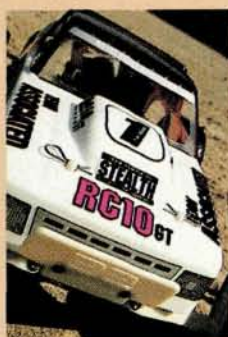
In Basildon, England, Team Associated's Brian Kinwald won the 2WD IFMAR Off-Road World Championship title with his Team Car, while Yokomo's Masami Hirosaka took the 4WD title with his Works '93 YZ-10.

Eric Clapton goes acoustic on "MTV Unplugged" and wins the "Album of the Year" Grammy for his "Unplugged" CD.

TRAXXAS NITRO HAWK



▲ In May, we featured the Traxxas Nitro Hawk—the first U.S.-produced 1/10-scale gas truck.



Team Associated's RC10GT was released to wide acclaim. The truck is on par with all of Team Associated's other ventures; it's excellent.

In L.A., an earthquake measuring 6.6 on Richter scale kills 51 and leaves 25,000 homeless.

The Trinity Green Machine 2 stock motor was released, and it quickly became the stock motor to have—if you want to win in the stock class, that is.

IFMAR Champ Brian Kinwald makes the move from Team Associated to Team Trinity/Losi.

Team Losi released the Double-X 1/10-scale 2WD buggy to an eagerly awaiting public.



▲ Bolink released the Legend—a very inexpensive spec-class racer—and it gave us a new spec-class series to race in. "Cost-controlled racing" became industry buzzwords.



Hippie-wannabes spent the weekend frolicking in the mud at Woodstock '94.

The Trinity EV10ss won almost every major race it entered, and we voted it Car of the Year.

Team Associated's RC10T was Truck of the Year.

Yokomo, known primarily as an off-road manufacturer, designed one of the most formidable sedans to date: the YR-4.

Novak's new One-Touch™ setup ESCs were released. Push the button, pull the trigger on your radio, press brake, then return to neutral and you're all set.



▲ Tamiya produced their first glow-powered vehicle—the TR15T truck.

More and more Tamiya F1 and Sedan cars hit the market. Parking-lot racing really took off.

1994



1994



MRC MT-10M

NOTABLE CAR RELEASES

ASSOCIATED RC10GT AND WORLDS CAR; TAMIYA ALFA ROMEO, KING HAULER, F-103, F1 CAR, TOYOTA PRERUNNER AND TR15T; BOLINK DIGGER AND LEGEND; TRINITY REVOLVER 12P; TEAM LOSI DOUBLE-X; KYOSHO INFERNO 10, OUTLAW RAMPAGE PRO AND IMPRESS; TRAXXAS 1/8-SCALE BUGGY; YOKOMO YR-4 AND YZ-10; MRC MT-10M AND MT-10S.



TEAM LOSI DOUBLE-X

NOTABLE PRODUCT RELEASES

C&M PROBE 4000; PRO-LINE ROAD HAWGS; MIP STINGER FOR THE RC10GT AND NITRO HAWK; TRINITY PANASONIC 1700S AND GREEN MACHINE II; REEDY SONIC MODIFIED MOTOR; NOVAK HAMMER PRO AND RACER; TEKIN BC112A AND BC112C CHARGERS.



YOKOMO YR-4



Tragedy strikes Oklahoma City as an explosion rocks the Federal Building

Team Associated let us sneak a peek at their all-new buggy, the RC10B2. After 10 years of service, the aluminum chassis that we have all come to know and love has finally gone!

Kyosho released the MP-5 Inferno—an 1/8-scale gasser incorporating front kick-up for better overall handling and steering.

▲ Team Associated swept up the '95 IFMAR Off-Road Worlds in Japan. Matt Francis claimed the 2WD title with the new RC10B2, and Mark Pavidis took the 4WD title with a Yokomo Works YZ-10.

ASSOCIATED RC10B2



TEAM LOSI DOUBLE-X



◀ Team Losi released the Double-XT stadium truck. Based on the Double-X buggy, the truck stepped up the competition in the ongoing truck wars. It won almost every race it entered and we voted it our Truck of the Year. Losi also took our Car of the Year award with their Double-X.



KYOSHO MP-5 INFERNO



TAMIYA MINI COOPER

Trinity unveiled its Midnight stock motor, which eclipses its predecessor the Green

Machine II and is now accepted to be the fastest stock motor on the market.



O.J. is acquitted. The country goes through court TV withdrawal.

Tamiya released the gas-powered TGX Mk 1 sedan. It's available with an Opel, Alfa Romeo, or Mercedes body set.

NOTABLE CAR RELEASES

TEAM LOSI DOUBLE-XT; TRAXXAS SRT, RUSTLER AND STAMPEDE; KYOSHO IMPRESS, PRO-XRT, PRO-X, MP-5 AND GP-20; YOKOMO YRX-10; HPI SUPER F1; ASSOCIATED RC10T2 AND RC10B2; TAMIYA MINI COOPER AND TGX MK 1TS; TEAM LOSI SPORT RACERS DOUBLE-X AND DOUBLE-XT.

NOTABLE PRODUCT RELEASES

PSE THOR DYNO; MIP ON-BOARD TEMP GAUGE; PRO-LINE SEDAN HAWGS; TRINITY BUGGYWALD MODIFIED MOTOR, EX-TECH SPEC BATTERY PACK AND DIRTINATOR EPOXY-BALANCED MODIFIED MOTOR; LOSI SILVER-COMPOUND TIRES; KYOSHO GYRO; NOVAK TEMPEST.

1995

Project Benetton appeared in January. If you really got into our Project '29 article in '94 but weren't crazy about hot rods, well, here's a chance to scope out this cool F1 car build-up piece by piece.

Captain Kirk wins presidential election.

Randy Coolbaugh's "Reader's Ride of the Year" is the first R/C vehicle to cross our desk that actually uses a working flame thrower, bionic ear, missile launcher and full motion detectors/sensors and an on-board video guidance/surveillance system.



NOTABLE PRODUCT RELEASES

TRINITY BUGGY GRIP; TEKIN BC110L; TEKIN TITAN.

Brian Kinwald proved that he's still the man in off-road racing as he won both the ROAR Modified Truck and Buggy titles in Savannah, GA.

TRAXXAS NITRO STAMPEDE



KYOSHO TF2

NOTABLE CAR RELEASES

KYOSHO TF2; TRAXXAS NITRO STAMPEDE

To see what else we'll bring you in '96, you'll just have to keep on reading.

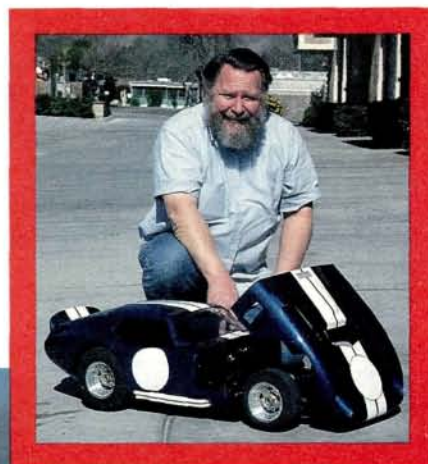


Faithful reproduction of a classic sports car in 1/4 scale

WHEN I WAS INVITED to have a closer look at Quarterscale Racing Specialties' (QRS) facility in rural San Jacinto, CA, for a look at their new 1/4-scale Cobra Daytona Coupe, owner Jeff Schmidt gave us detailed directions that ended with, "...and look for the big McDonald's truck." Upon arrival, I quickly realized that he was referring to an enormous Larry Minor/McDonald's Drag Racing semi transporter rig, which was painted to match the Cory Mac/Cruz Pendregon dragsters. You sure can't miss it!

Two doors down from the Minor's shop is QRS's shop, where the Schmidts build some of the most amazing 1/4-scale cars, trucks and even boats I've ever seen. Unlike many other manufacturers who farm out most of their work to specialized subcontractors—a welding shop for the frames, a fiberglass shop for the bodies, etc., QRS is a from-the-drawing-board-up fabrication facility. They have some really incredible cars in the works, including the stunning Cobra Daytona—the first in a line of limited-edition classic sports cars from years past.

QRS owner Jeff Schmidt with the Cobra. Jeff collaborated with Peter Brock—the designer of the full-size Cobra Daytona Coupe—to create the most accurate replica possible.



PHOTOS BY MIKE OGLE

Quarterscale Racing Specialties' Cobra Daytona Coupe faithfully replicates one of the rarest collector's sports cars ever produced.

QRS **Cobra** by Mike Ogle
Daytona
C O U P E

AUTHENTIC REPLICAS

Jeff's background includes fabricating parts for full-size racecars, so he collaborated with Peter Brock—the designer of the full-size Cobra Daytona—to create the 1/4-scale Cobra. They have replicated every scoop and vent perfectly, and Jeff has the extensive research to prove it. "There were only about six of the real Cobra Daytonas ever actually produced, so with all the subtle variations—colors, different striping, or numbers for different races, etc.—we could only really produce a limited number of these cars without duplicating a version. Every one will be as exactly correct as we can make it to a full-size prototype."

Every Cobra will come complete with

SPECIFICATIONS

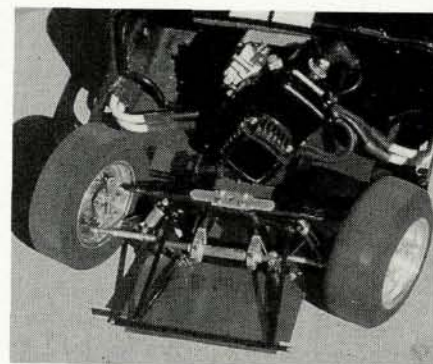
SCALE	1/4
DIMENSIONS	
Length (overall)	41.5 in.
Wheelbase	22.5 in.
Width	17 3/16 in.
Height	11.5 in.
WEIGHT (gross, RTR)	34 lb.
CHASSIS	
Type	Tubular steel
DRIVE TRAIN	
Type	Skellenger quick-change rear end
Transmission	Centrifugal clutch
Bearings/bushings	Ball bearings
SUSPENSION (F/R)	
Type	4-wheel, independent
Damping	Oil-filled shocks and leaf springs
WHEELS	
Type (F/R)	Machined-aluminum billet
Dimensions (DxW)	
—front	3 7/8 x 1.25 in.
—rear	3 7/8 x 1.75 in.
TIRES (F/R)	Neoprene foam

a Zenoah* 22.5cc engine, or a scale Conley* V8. The Conley-equipped versions aren't cheap, but to people who really love their sports cars, they'll be irresistible!



The custom, all-welded frame of the QRS Daytona Cobra Coupe shows the workmanship that goes into each of these limited-production vehicles.

authentic interiors, headlights, markings and many other features. Because every car is built to order, the customer can choose



This particular example is fitted with a 22.5cc Zenoah gasoline engine. A working V8 engine, made by Gary Conley, is also available.

THE SUPER SNAKE

The car pictured here, though not yet fully detailed, has been ordered with a Zenoah and features custom aluminum wheels from Rick's R/C. The front of the fiberglass body swings away to reveal an authentic traverse-leaf suspension, with handmade leaf springs and small shocks. The Zenoah engine's exhaust is split into four separate tubes and routed out through the working side pipes. At the rear, a Skellenger quick-change rear end is used for its versatility and scale looks.

Jeff is pretty excited about these limited-edition sports cars (the next series will probably be a Ford GT-40!) and about the number of custom-order cars that he's currently working on. He says that he'd eventually like to manufacture an all-American-made car and use an American engine—probably a HomeLite or a McCullough. He's also looking into electric-powered, 1/4-scale cars as an alternate power source.

If you'd love to own one of these handmade Cobra Daytonas, or you want to build some "better mousetrap" for racing or duplicate your own full-size car in 1/4-scale, give Jeff a call at (909) 617-1109, or write to him at Quarterscale Racing Specialties, 962 Reinhart St., San Jacinto, CA 92583.

* Addresses are listed alphabetically in the Index of Manufacturers on page 176.

COBWEBS IN A CAN!

You won't believe your eyes.



New from Coverite's BodyShop, Cobwebs are specially formulated aerosol spray paints that literally splatter right out of the can, allowing you to instantly create wild, California-style paint jobs! Cobwebs can be sprayed on R/C cars, planes, boats and helis, full-size autos, trucks, vans and hot rods, even bicycles, helmets, skateboards, sneakers and t-shirts. For unlimited variations and outrageous color schemes on Lexan® car bodies, BodyShop Cobwebs can be sprayed inside the body and backed with any color of BodyShop paints. One can of Cobwebs will last for several R/C car bodies. Richard Muise of Motion Graphics, America's premier R/C car painter says "No secrets or tricks - with BodyShop Cobwebs I can quickly create concours quality custom paint jobs without my airbrush - the possibilities are only limited by the imagination."

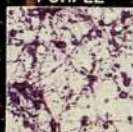
AVAILABLE IN FOUR WILD COLORS!

NEON PINK

PURPLE

NEON GREEN

BLACK



BODY
SHOP

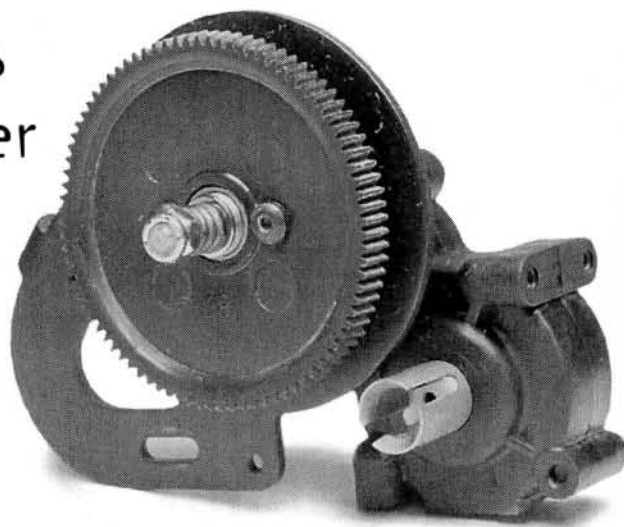
by

COVERITE

420 BABYLON ROAD, HORSHAM, PA 19044

by FRANK MASI

Simple steps to a smoother gearbox



Rebuild Your Transmission

WHAT'S THE most important part of your R/C car? The motor? The battery? The shocks? These things are crucial for good performance, but if your transmission isn't in tiptop shape, you won't be able to make use of that fast motor or that killer battery pack.

Most transmissions are pretty simple, and if you build them right in the first place, they'll usually last a long time before they need routine maintenance. But they *do* require some attention from time to time; if you neglect your tranny, small problems will become large ones!

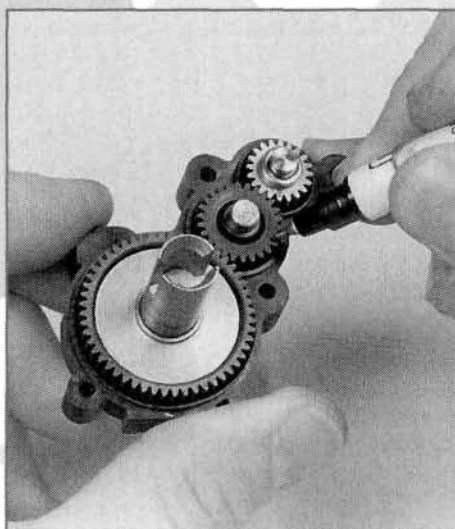
This article will show you how to look for signs that your tranny needs some TLC and will explain the simple steps to restoring it to topnotch condition. If you suspect that you've abused your tranny and it needs far more than routine maintenance, don't worry; we'll take pity on you and help you out, too.

All "black-boxed" text indicates when you should replace parts.

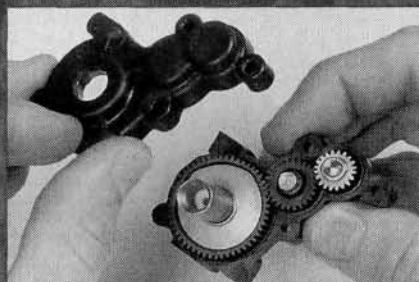
Disassembly

1 After you've removed the screws that hold the case halves together, tilt the transmission onto its side, and carefully separate the case halves. Ideally, all the gears inside the tranny should remain in one case half. If they don't, place them in one half, then mark the side of each gear with a permanent marker so that you'll know the proper direction in which to re-install them.

Next, remove the differential, the idler gear and the top gear shaft (you'll also need to disassemble the slipper clutch, if your car has one). Remove all the bearings from the case halves and from the gears, and set them aside.



Looking for signs of wear



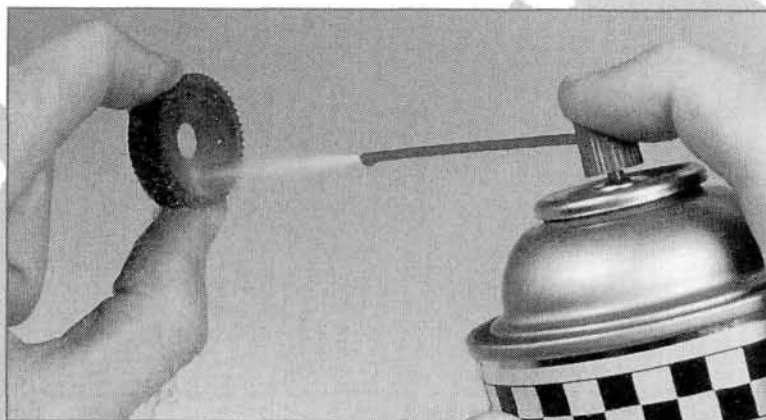
You should perform a basic tranny rebuild after every three hours of run time. Between 5 and 8 minutes of run time per battery pack translates into a rebuild after every 23 to 36 packs.

You should also learn the signs that indicate *premature* wear and breakage:

- a gritty-feeling ball diff;
- reduced run time (usually because of a dirty or broken bearing, or excessively worn gears);
- loud or strange sounds (an obvious clue!);
- poor handling (especially when exiting turns under acceleration).

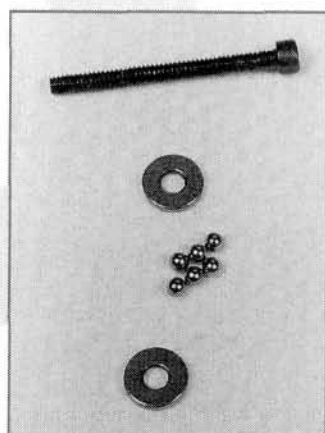
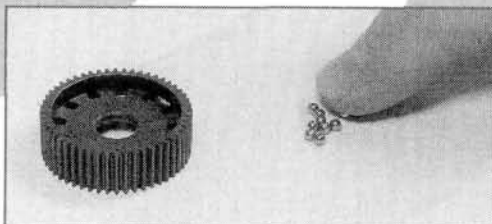
When you've determined that it's time for a rebuild, clear a spot on your workbench, lay down a towel or a clean rag to work over, and remove the transmission from the car.

Diff Duty



2 Disassemble the entire diff and clean each part. If your diff gear

is the type that "traps" the diff balls, spray the entire gear/ball assembly with motor spray to remove dirt and old lubricant. For other types of gear, remove the diff balls before spraying the gear with cleaner, and clean the balls separately.



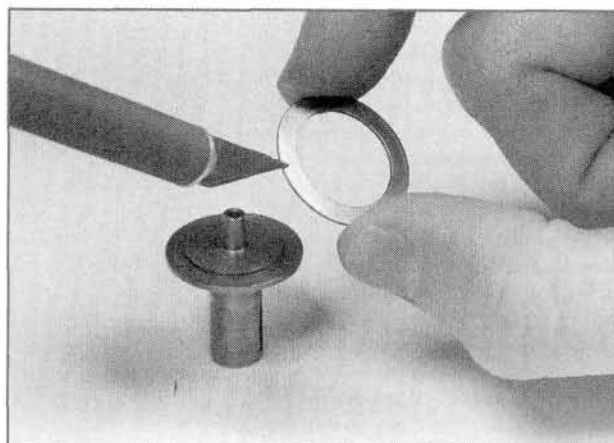
3 Whenever your diff gets that "gritty" feel, the culprit is almost always the thrust bearing. Cleaning the thrust bearing is the single most important task in diff rebuilding, and how well you clean this bearing greatly affects the smoothness of the diff action.

Spray the thrust-bearing assembly with motor spray. Use the spray lightly to avoid blowing the small parts all over your work area. For Associated-type thrust bearings, i.e., those that use separate balls, roll the tiny balls across a clean paper towel with your finger. For Losi-type thrust bearings, i.e., those that use small "cages" to hold the balls, more forceful use of the motor spray is acceptable; just hold the bearing with tweezers or small needle-nose pliers. If possible, avoid getting solvents and chemicals on your skin.

Replace the thrust-bearing balls or thrust bearing with a cage after three rebuilds. Replace them more frequently if you want the utmost in smooth diff action.

4 When all the diff parts have been cleaned, examine the large diff rings and the small thrust-bearing washers for signs of wear. You'll notice that the rings and washers develop tiny grooves where they contact the diff and thrust-bearing balls. With most types of diff, you can simply reverse the rings and washers when you re-install them so that the diff and thrust-bearing balls will ride on new washer surfaces. Of course, after you've done this once, you'll run out of fresh surfaces, and you'll have to buy new rings and washers.

Replace the large diff rings during every third rebuild. The large, main diff balls usually last pretty long—especially if they're made of hardened steel—but it's a good idea to replace them after you've rebuilt your diff five or six times. If your diff is allowed to slip, the large balls will wear more quickly, as will the diff rings.

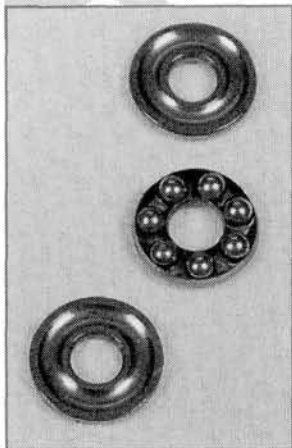


Setting the diff and slipper clutch

Many popular off-road cars and trucks have both a ball diff and a slipper clutch in their transmissions. With this setup, the ball diff shouldn't be allowed to slip at all—that's the job of the slipper clutch.

There's some confusion among less experienced hobbyists about telling when the diff and slipper have been set correctly. Here's an easy way to get great results.

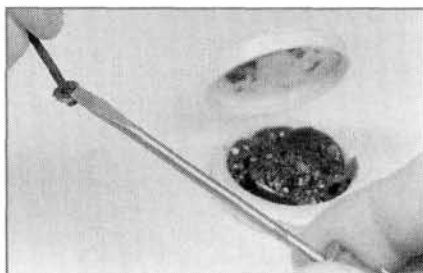
- With the car or truck fully assembled and ready to run and the transmission's gear cover removed, lock down the slipper-clutch adjustment nut until it's as tight as it can be.
- Press both rear tires to the ground to prevent them from spinning, then try to move the spur gear by hand; it should be very difficult, if not impossible to do this.
- If you're able to move the gear with less than Herculean effort, it means that the diff has been set too loosely.
- Tighten the diff a little at a time until it's very hard to move the spur gear; now, your diff is set correctly!
- Loosen the slipper-clutch nut a few turns until you're able to move the spur gear with moderate effort.
- Place your car on the ground, preferably on the surface on which you'll be running, and perform a full-throttle takeoff from a dead stop. The slipper should slip for 2 to 4 feet. If you've installed a new slipper pad, run the slipper a bit more loosely for the first few runs to seat the pad properly.



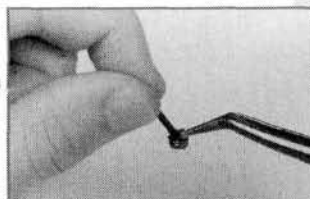
5 Certain thrust-bearing washers have tiny channels in which the balls ride. You won't be able to flip these around when you rebuild, so you'll have to purchase new ones should your diff become really gritty. I'm of the opinion that, because they distribute the pressure of the thrust balls over a larger area, these channeled washers last a bit longer and require replacement less frequently than flat washers.

Replace the thrust-bearing washers after you've rebuilt the diff twice.

7 Assemble the thrust bearing next. Unlike the previous step, this step requires plenty of grease. In most instances, a thick, heavier grease is used on the thrust bearing, while a thinner, silicone-based lubricant is used on the main diff balls. Never use silicone diff lube on the thrust bearing.



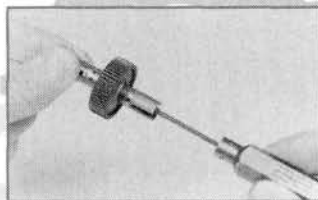
Slide one thrust-bearing washer over the diff's adjustment screw, and use a small, flat-blade screwdriver to put an ample amount of grease on the washer. Install the balls by embedding them carefully in the grease, and make sure that you install the correct number of balls (follow your kit's instructions). Slide the remaining washer over the diff screw to complete the "sandwich."



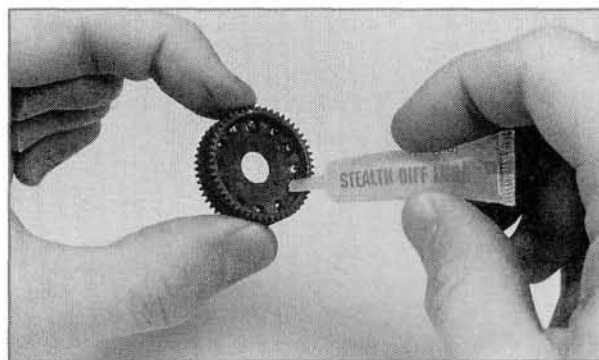
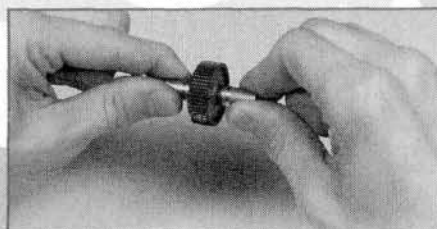
For cage-type thrust bearings, pack them fully with grease. I'll often sink the cage into the grease container, remove it, then wipe off the excess. Associated* now packages its black grease in a handy applicator tube, which makes this process much neater.

9 After the diff parts have been re-assembled, it's time to tighten the diff adjustment screw. This is critical, so take your time, and do it right.

Tighten the adjustment screw until it exerts slight pressure on the diff assembly, i.e., just enough to hold everything together. Then begin to make your final adjustment. Tighten the screw slowly, and

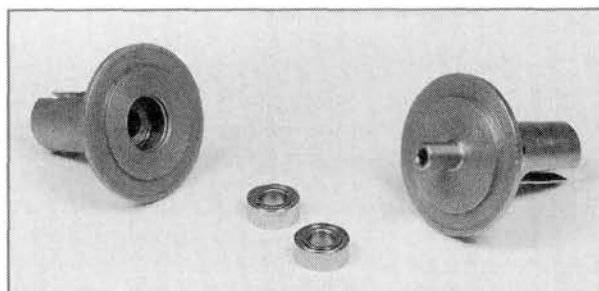


work the diff back and forth every time you turn the screw half to one full turn. This will help to prevent the diff balls from developing flat spots that make the diff feel rough.



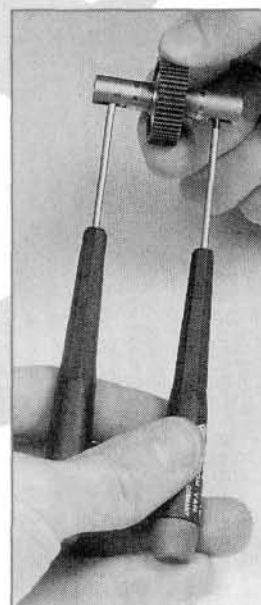
6 Lubricate the large, main diff balls using the type of grease that's recommended by the diff's manufacturer. You just need enough lube to coat each ball; don't go crazy, because all that extra grease is only good for attracting dirt!

After you've lubricated the diff balls, wipe excess lube off the gear's surface.

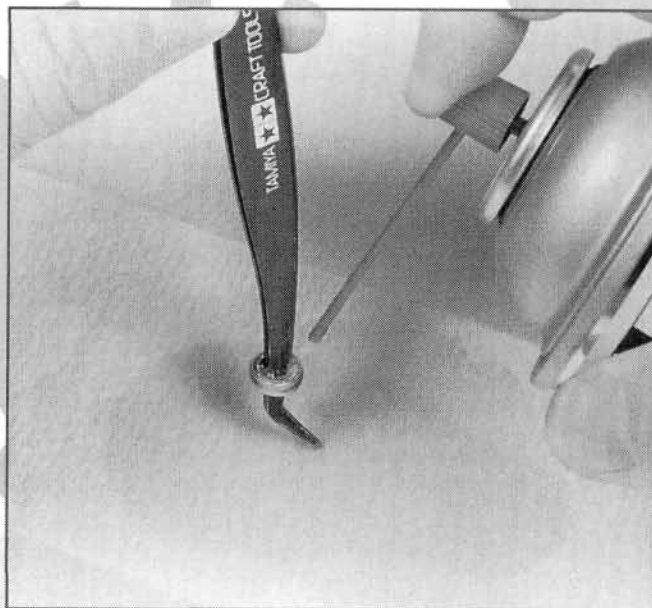


8 Now it's time to reassemble the diff. If you're not sure exactly how your diff goes together, refer to your kit's instruction manual (you did save it, didn't you?). Some diffs contain one or more ball bearings. I've yet to see one of these bearings become gritty or damaged, so they don't usually require any sort of maintenance other than removing dirt or excess lube from the outside.

10 How tight is tight enough? That depends on what your kit's manufacturer recommends. For example, Associated recommends that you tighten the Stealth diff until the diff spring bottoms out, then back the screw off about half a turn. Setting other types of diff is more of a trial-and-error process, but the following should help get you in the ballpark: place a small, flat-blade screwdriver in each of the diff outdrives to prevent them from turning, then try to spin the diff gear with your hand; if the diff is tight enough, it should be extremely difficult, if not impossible, to move the gear.



Cleaning the Bearings



11 Using a toothbrush, remove any dirt from the outside of the bearings, then spin every bearing by hand; if one feels gritty, it needs to be cleaned.

To clean most metal-shielded bearings, slide the bearing over the tapered jaws of a pair of needle-nose pliers, or over the end of a pair of tweezers, and spray it with a short burst of motor-cleaning spray (Teflon™-sealed bearings, or other types of "maintenance-free" bearings usually won't need to be cleaned). Then, spin the bearing with your finger. Repeat this process until it spins freely without a gritty feel.

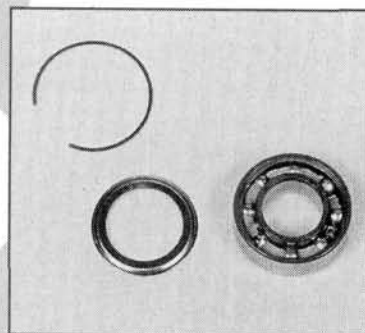
The more easily your tranny spins, the faster and more efficient your car will be. For this reason, it's strongly recommended that you install ball bearings if you don't already have them—at least in the tranny.

Bearings are relatively maintenance-free—especially if they're sealed in the transmission case—but you'll need to pay special attention to the bearings on the diff outdrives and on the slipper-clutch side of the top tranny shaft, because these are subjected to the most dirt.

12 If you need to clean Teflon-sealed

bearings (or any bearing that's tightly sealed), remove the bearing shields.

Carefully, and I mean carefully, remove the small C-clip that retains the bearing shield (a sharp X-Acto knife works well). Do not bend the C-clip when you remove it.



13

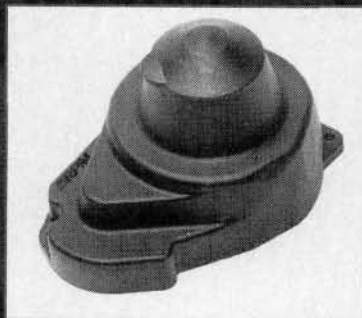
After both shields have been removed, spray the bearing with motor cleaner to dislodge any particles. Let the bearing air-dry, then lubricate it with a small amount of low viscosity oil, and replace the bearing seals and C-clips.

Hey, Guys! Run a Gear Cover!

The next time you're down at the local track checkin' out the action, notice how many racers run their cars and trucks *without* the gear cover. You'll be surprised by how many don't use this simple little cover.

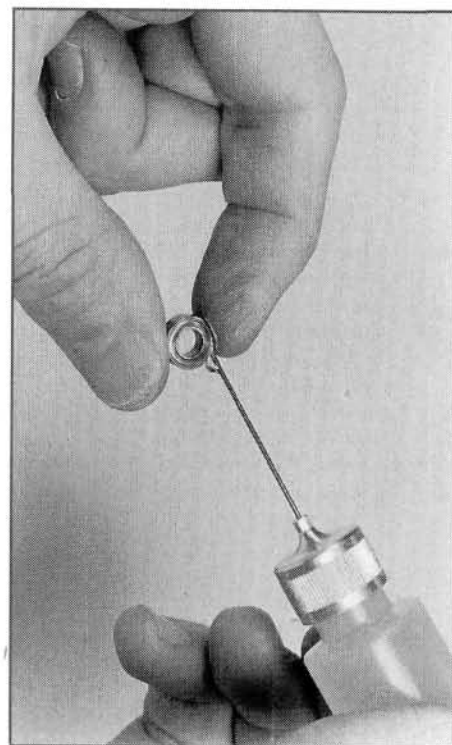
There are two very good reasons why everyone should use gear covers. The first and by far the most important reason is safety. Have you ever seen what a spinning spur gear can do to someone's hand? It's not pretty. So unless you like to mangle the hands of helpful turn marshals, run with the cover!

The second reason is because it keeps the crud away from the pinion and spur gears! Ever notice that some cars sound like your nephew Hughey's bike when he puts baseball cards in the spokes? It's highly prob-

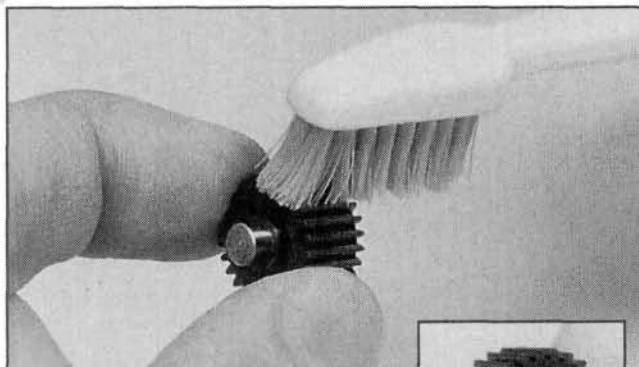


able that the car sounds that way because the owner was too lazy to put on the gear cover, and he has sucked just about every piece of dirt on the track through his nearly stripped spur gear.

Don't be a tree sloth; put on the gear cover before someone loses a finger!



Examining the Gears

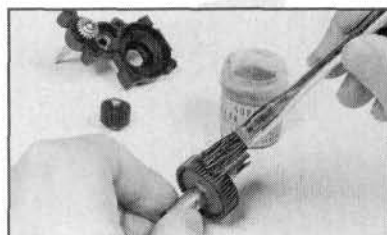


14 Now it's time to judge the condition of the rest of the tranny, specifically, its gears. Clean the teeth of each transmis-

sion gear using a stiff-bristled toothbrush. Oil or grease can be removed from the gear teeth by using a small amount of motor spray.

Here are some clues to help you determine whether your tranny's gears have been worn or damaged and need to be replaced.

- **Sharp teeth.** Gears have squared-profile teeth. When they become worn, they tend to develop sharp points.
- **Pits or dings** that have been created by pebbles or small debris caught in between the gear teeth.
- **Missing teeth.** (I know this is obvious, but I've seen people run their cars with missing gear teeth!)

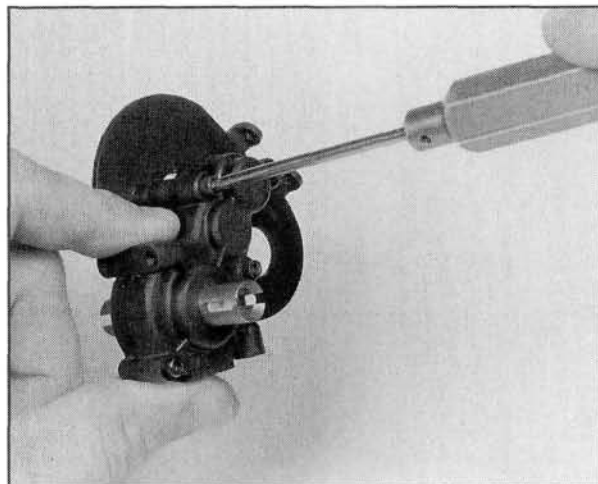


15 Now that your bearings have been cleaned, your diff is in perfect order and your gears are in good shape, you can begin to reassemble the tranny.

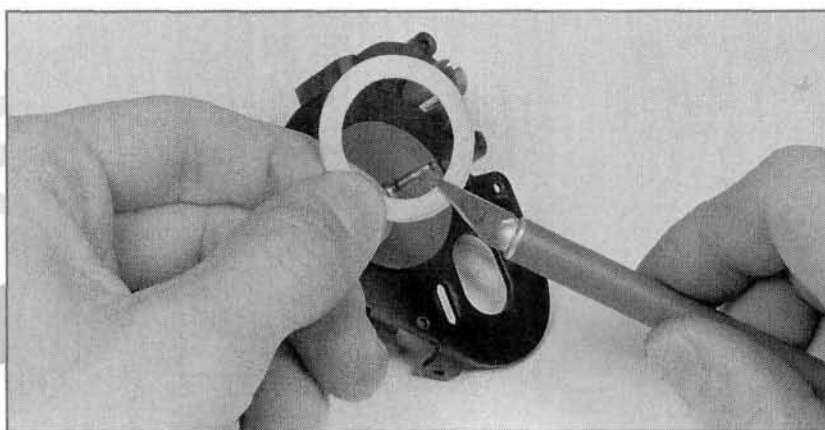
Most manufacturers don't recommend that you use any type of grease or oil on their tranny gears; however, do yourself a favor, and pick up a jar of Aero-Car's® Super Speed gear lube. Coat each tranny gear with this lube before you reassemble the tranny. You'll find that it will be quieter, and the gears will usually last longer.

16

When you reassemble the gear-case halves, it's important that you don't over-tighten the case screws because doing so can cause the tranny to bind. Tighten the screws until they're snug and no more.



Checking the Slipper Clutch



17

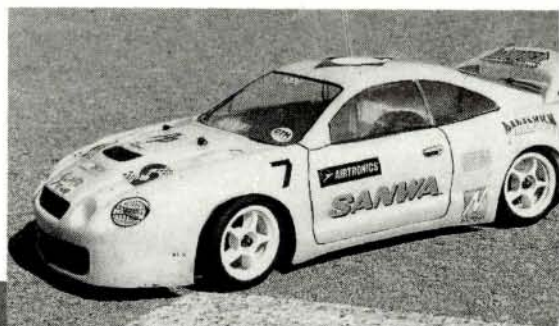
A slipper clutch is a pretty simple device that needs little attention. Check the slipper pad for signs of wear or damage. A shiny pad means that it's coated with a glaze, which you'll need to remove either by scraping the pad with the edge of a sharp X-Acto knife, or by rubbing the pad against a flat piece of fine-grit sandpaper.

Check how the pad fits against the slipper clutch plate; if the pad has a lot of slop, it has been stretched and should be replaced.

Keeping your transmission in top shape takes work, but you'll find that the more you do it, the easier it will become. Besides, nothing hurts performance more than a worn-out transmission, and nothing improves performance like a freshly rebuilt, silky smooth gearbox. Whether you want to win races or simply make your car or truck perform up to its potential, give that tranny a serious look.

* Addresses are listed alphabetically in the Index of Manufacturers on page 176.

KYOSHO Spider



The author reads his car for another shakedown run.

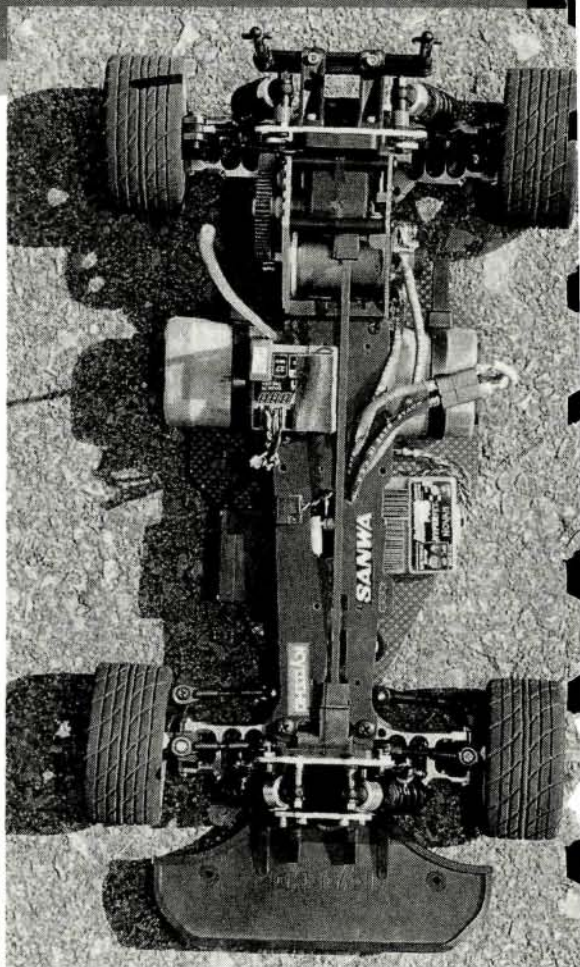
by John Howell

WHEN I received the Kyosho* Spider, I thought of it as just another entry-level sedan (especially considering that I was spending most of my time drooling over Frank's dialed-in Yokomo YR-4). After I had messed with the Spider for a while, however, I saw that it, too, had the potential to be a topnotch racer.

TEST VEHICLE— KYOSHO SPIDER

To help get it to that "next level," I replaced a few of the stock items. First, I replaced all the bronze bushings with ball bearings. Then I replaced the aluminum chassis with a really trick-looking graphite chassis from Kyosho. I also added Kyosho universals; a lightweight, blue-anodized Kyosho motor plate; a full set of Kose* blue-anodized, aluminum

suspension arms; and Kose gold-anodized, hardened outrdrives. The mods made the car look very sleek, and they gave it an "all-business" look, too. Aside from making the car aesthetically pleasing, the mods also turned it into a major performer on our parking-lot test track. The gear diffs were the only major items I left in place; I might replace them with optional ball diffs later.



PHOTOS BY JOHN HOWELL

SETUP RESULTS

I've spent plenty of time driving and wrenching on the car, and I have to say that it is one of the easiest sedans I've ever worked on and driven. Not too long ago, I would have thought that nothing could come close to the performance of Yokomo's YR-4. Well, now I hon-

PARTS LIST

KO PROPO

- 1001 servo (available through Tower Hobbies*)—part no. KJ1144

KOSE

- Front and rear aluminum suspension arms—K-7052 and K-7053
- Hardened outrdrives for gear diffs—K-7003
- Titanium kingpin set—K-1551

KYOSHO

- Ball-bearing set—KYOC2189
- Carbon chassis—KYOC2875
- S.P. heat-sink motor mount—KYOC4216
- Universal swing shaft—KYOC6120

NOVAK

- Hammer Pro—1750
- NER-3FM (27MHz)—8227

TAMIYA

- Super Grip wide radial tires (2 pairs)—53231
- One-piece 5-spoke wide wheels (2 pairs)—53233
- Hard-foam inserts (2 pairs)—53230

TRINITY

- Panasonic 1800 stick pack—5776Z
- 40WT Silicone oil—7640
- Championship Edition 12-turn single

estly believe that, after a little work, my Kyosho Spider's performance can actually rival that of the YR-4. The Spider is amazingly hooked up on our test track. I've been running a variety of wheel/tire combos, motors of various winds and different batteries. I recently found a combination that seems to suit my driving style. Here's my latest setup:

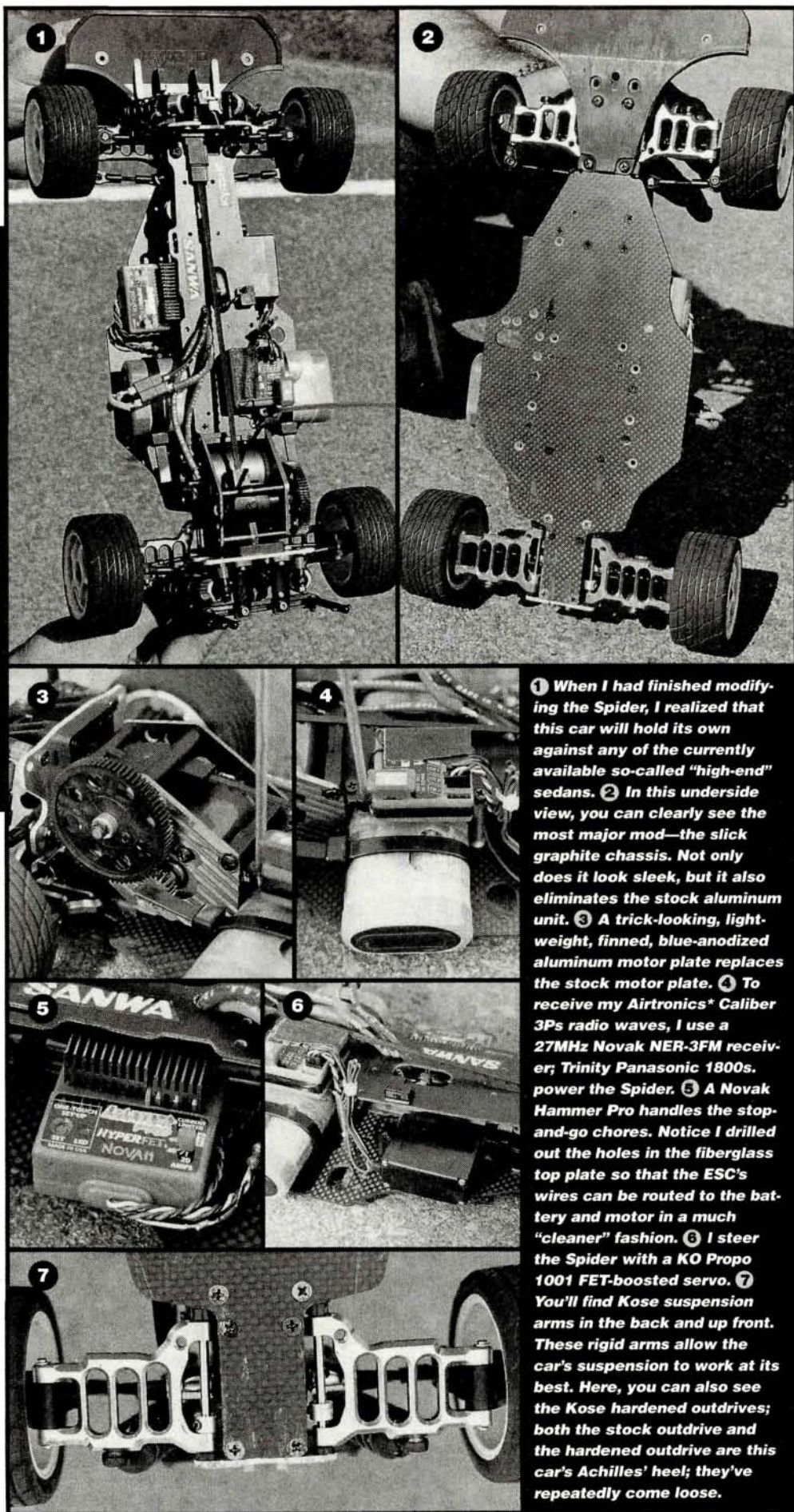
- 40WT Trinity* silicone oil in the shocks with two-hole pistons;
- Tamiya* wide slicks with hard-foam inserts all the way around;
- Tamiya 5-spoke wide wheels;
- Trinity Panasonic 1800 batteries;
- Trinity Championship Edition 12-turn single motor;
- Kyosho Celica body.

The car is set up for *my* driving style, so this might not be the best setup for you.

PERFORMANCE

After having driven with this setup, I realized a few things about the car.

- The stock shocks are ultra-smooth. I used RCPS* Green Slime



① When I had finished modifying the Spider, I realized that this car will hold its own against any of the currently available so-called "high-end" sedans. ② In this underside view, you can clearly see the most major mod—the slick graphite chassis. Not only does it look sleek, but it also eliminates the stock aluminum unit. ③ A trick-looking, lightweight, finned, blue-anodized aluminum motor plate replaces the stock motor plate. ④ To receive my Airtronics* Caliber 3Ps radio waves, I use a 27MHz Novak NER-3FM receiver; Trinity Panasonic 1800s. power the Spider. ⑤ A Novak Hammer Pro handles the stop-and-go chores. Notice I drilled out the holes in the fiberglass top plate so that the ESC's wires can be routed to the battery and motor in a much "cleaner" fashion. ⑥ I steer the Spider with a KO Propo 1001 FET-boosted servo. ⑦ You'll find Kose suspension arms in the back and up front. These rigid arms allow the car's suspension to work at its best. Here, you can also see the Kose hardened outrdrives; both the stock outrdrive and the hardened outrdrive are this car's Achilles' heel; they've repeatedly come loose.

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KYOSHO SPIDER

on the shock seals, and they haven't leaked yet—even after hours of track time.

- The drive train is equally smooth. I haven't noticed any drawback to using the stock gear diffs.

- The car exhibits minimal body roll through turns.

- When equipped with HPI* tires and wheels, the car gets into a groove and feels very planted. When I put on the Tamiya Super Grip radial tires with the hard-foam liners, the car slides through the really sharp turns (especially on-power). I prefer to slide aggressively sideways through some of the sharper turns, so that suits me just fine. I experience some wheelspin, which I assume kills some of my overall run time, but I like to pitch it into the corners a little hot anyway. If I try to make a sweeping turn on power, the car pushes. All I have to do to correct that is to back off the throttle then nail the trigger again to straighten it out. Pro-Line* Sedan Haws have provided the most traction. Further testing will include mounting Pro-Line Sedan Haws on the rear with narrower, hard Tamiya tires up front.

- I set my Novak* Hammer Pro torque limiter to 40 amps. I initially set it to 80, but the wheels would spin far too much.

- The Trinity Panasonic batteries provide smooth power and long run times. They don't provide the same punch as Sanyo SCRC 1700s, so the overall power band is much smoother and more mellow—perfect for this type of racing.

- I started with a Peak Performance* DTM, bushing-equipped, modified motor. It provides decent speeds, but I wanted a bit more power. I tossed in the Trinity 12-turn, and the sedan flew at a ballistic speed. I think this motor is a little too fast for this application, though. The perfect wind for our track is in the 15- to 17-turn range. I have a 2-speed for this car lying around somewhere; it might be interesting...

- The outdrives for the gear diffs are the only things on the car that are a pain; they keep coming loose! This has happened with both the stock Kyosho units and the Kose hardened outdrives. I wanted to use thread-lock only as a last resort, but I think I'll have to use it on them.

FINAL VERDICT

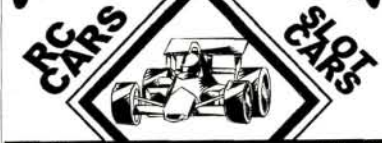
Overall, the Kyosho Spider is quickly becoming one of my all-time favorite R/C cars. It's fast and very agile, and it has proven that, with relatively few modifications, it has what it takes to keep up with some of the more expensive sedans.

*Addresses are listed alphabetically in the Index of Manufacturers on page 176.

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Grassroots

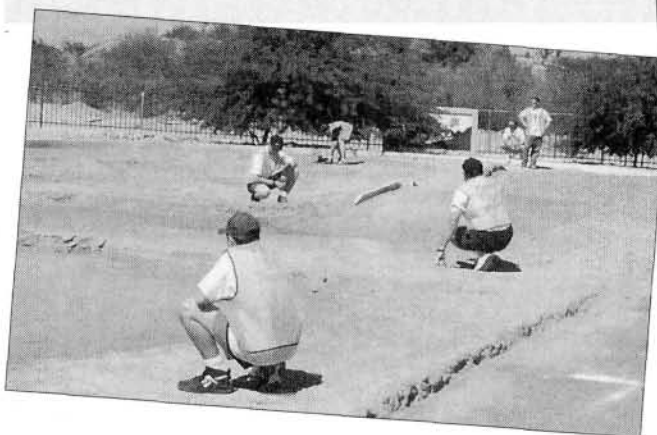
This is YOUR PAGE—YOURS!! It belongs to you, the optimistic local racer on a budget who's looking for some evenly matched action; the individual who's in it for the fun of it all: the grassroots racer—whether on-road or off-road. We at *Car Action* really do want to see your tracks, your cars and your local heroes—men, women, boys and girls (we love cats and dogs, too!). Show us your local racing scene! Send photos with captions to "Grassroots Racing," *Radio Control Car Action*, 251 Danbury Rd., Wilton, CT 06897-3035.



Blazin' Beach Battle

The 1995 Battle of the Beach race in Lake Havasu, AZ, provided a relaxed week-end of racing fun. Sponsored by Pro-Line and run by NORRCA's J.R. Sitman, the race boasted its highest attendance ever with more than 200 entrants. There was an increased interest in the Sportsman classes; the handout tires were provided by Pro-Line, and the handout motors and batteries were provided by Reedy Modifieds.

Clockwise from top: this Losi Double-XT catches some air on the doubles. It's an easy ride over the table-top for this Losi LX-T. Some of the winners proudly pose in the winners' circle. The turn marshals get ready for the next Main.



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Expert 2WD Stock

Kenny Johnson
Ryan Maifield
Mike Wiglar

Expert Stock Truck

Jon Mitchell
Randy Poh
Blade Luna

Sportsman 2WD Stock

John Connelly
Randy Oshins
Scott Reel

2WD Mod

Billy Easton
Richard Saxton
Albert Guardado

Sportsman Stock Truck

Randy Oshins
Mathew Sato
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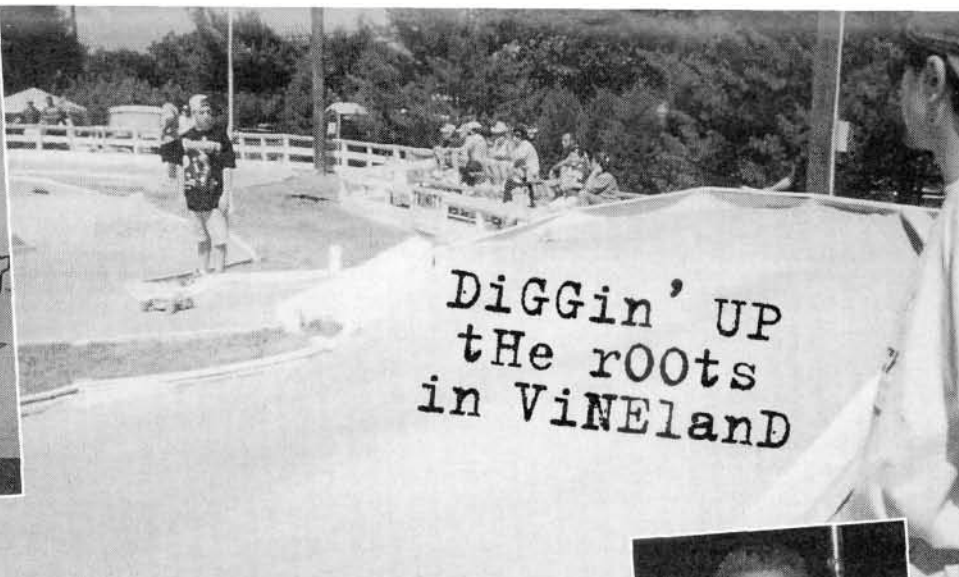
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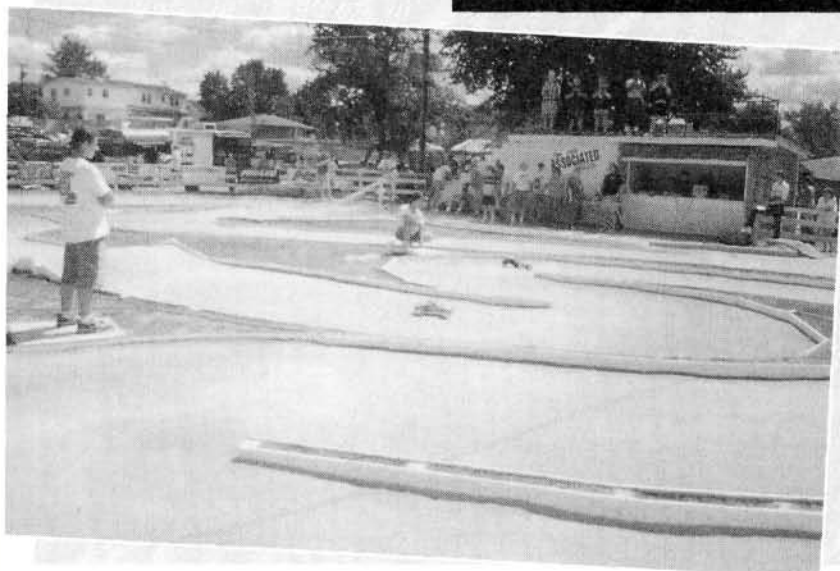
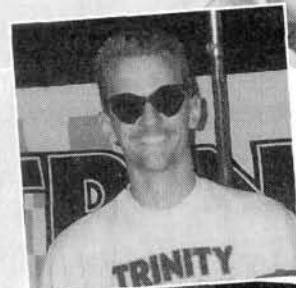
(908) 862-1705



A wide variety of drivers took to the track at the Family Hobby Center in Vineland, NJ. Local racers had a chance to compete against the likes of Brian Kinwald on the very demanding track.

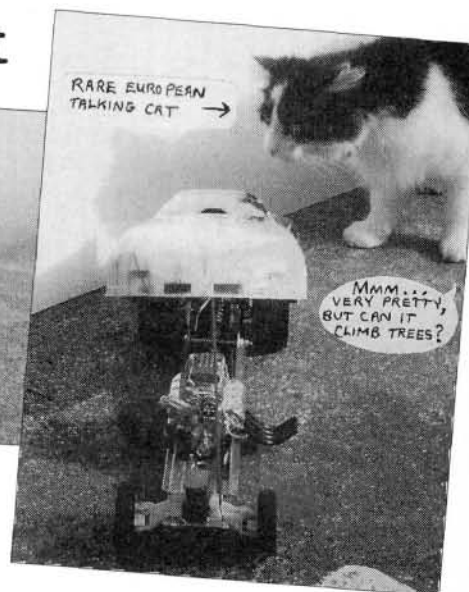
WINNERS

2WD Stock	Truck Stock	2WD Mod	Truck Mod
Brain Kinwald	Craig Chin	Brian Kinwald	Brian Kinwald
Craig Chin	Brian Kinwald	Todd Lewis	Craig Chin
Alex L.	Todd Lewis	Jim Galletto	Todd Lewis



Clockwise from top left: Brian Kinwald once again displayed his racing skill by taking the win in 2WD Stock, 2WD Mod and Truck Mod. This turn marshal kept busy watching the cars as they attempted to navigate this steep, sweeping left turn. Team Trinity's newest member, Todd Lewis (top), and Jim Stoudt (bottom), owner of Pit Stop Hobbies in Mount Joy, PA, were just two of the racers who joined in the competition. The family Hobby Center track is one of the oldest on the East Coast. It demands a good car setup, lots of low-end power and lots of traction.

Hero Worship and the Talking Cat



Left: Chris Booker of Wilmington, Kent, Great Britain, got the thrill of a lifetime: proudly presenting his scale model TA/FC to his racing idol Urs Erbacher. **Middle:** Chris has also created this rocket-powered "Phoenix driver," which goes so fast it has trouble keeping its tires on. **Right:** as far as Chris knows, this is the first time this rare talking cat has been captured on film. Better hope he doesn't figure out how to use the phone, Chris!

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R/C Sports Mania, 3550 N. 35th Ave., Phoenix, AZ 85017; Brian Dick, (602) 278-3671

Scottsdale R/C Raceway, 3023 N. Scottsdale, Scottsdale, AZ 85251; Mike Dolan, (602) 829-9117

Speedway Hobbies, 1000 N. Humphreys St., #204, Flagstaff, AZ 86001; Gary McAllister, (602) 556-0710

Trax Raceway, 401 E. Wilcox Dr., Sierra Vista, AZ 85635; Bryan Mills, (602) 452-9704

USA Speedway, 5947 W. Alameda, Glendale, AZ 85310; Michael Fleek, (602) 516-1398

ARKANSAS

A.R.C.A., 13703 Pleasant Hill Rd., Little Rock, AK 72209; Jim Kifer, (501) 455-2221

R/C Motorplex, 204 Best Industry Dr., Jonesboro, AR 72401; David Hill or Kevin Brady, (501) 931-3278

Sparks R/C Raceway, 7194 Greene 721 Rd., Paragould, AR 72450; Tommy or Daniel Sparks, (501) 239-3606

Tri State R/C, 415 N. 4th, Fort Smith, AR 72901; Robbie Langely, (501) 783-4038 or (501) 452-7783

CALIFORNIA

Cameron Park Raceway, 1305 Cameron Ave., West Covina, CA 91790; Carl A. McVey, (818) 962-1120

Cats West/Hawk's R/C Raceway, 1201 West 10th St., Antioch, CA 94509; Jerry Winkelbaver, (510) 779-1665

Chico's 20th Street Raceway, 236A W. East Ave., Chico, CA 95926; David Brown, (916) 893-6443

City Speedway, 7750 Convo Ct., San Diego, CA 92111; (619) 560-9633

Cloverdale R/C Raceway, 1 Citrus Fair Dr., Cloverdale, CA 95425; Bob Eulie, (707) 894-4468

D&D Raceway, 290 S. 1st Street, Turlock, CA 95380; Dave Miller or Lee Cisco, (209) 667-0907

Fast Lane, 25845 San Fernando Rd., #21, Saugus, CA 91350; (805) 255-2404

Greater Los Angeles R/C Racing Club, 3756 Cardiff Ave., #305, Los Angeles, CA 90034; Nikko Ko

Hobbies Emporium, 1324 Vendels Cir. #111, Paso Robles, CA 93446; Rick Powers, (805) 239-0408

Hobby Haven Raceway, 3983 First St., Livermore, CA 94550; Tom Welding Jr., (510) 443-5828

Hobby Tech, 7932 Miramar Rd., San Diego, CA 92126; Henry Moller, (619) 586-1701

Hobby Warehouse, 5500 So. Watt, Sacramento, CA 95828; Roger Hubbard, (916) 381-7587

Jake's Performance Hobbies, 6650 Commerce Blvd., #21, Rohnert Park, CA 94928; Jake, (707) 586-3375

JC High Desert Raceway, Gorgonio Rd., Phelan, CA 92329; JC Fletcher, (619) 868-4834

JD Hobbies, 1009 W. College Ave., Santa Rosa, CA 95401; Mike, (707) 571-1700

K&M R/C Raceway, 22474 A Barton Rd., Grand Terrace, CA 92324; Mike Blake, (714) 783-0899

KW Raceway, 5630 Ager Rd., Montague, CA 96064; Keith Wilson, (916) 459-3787

Lodi's Radio Control Speedway, 1033 Black Diamond, Ste. B, Lodi, CA 95240; Mike Belanger, (209) 334-5681

Lucerne Valley Raceway, 32800 Old Woman Springs Rd. #4, P.O. Box 2047, Lucerne Valley, CA 92356; Frank Rodriguez, (619) 246-7305

M n M Hobbies, 137 N. Vander, Vorona, CA 91720; Joe Stanovich, (909) 272-3545

Outlaw Hobbies, 7920 Inland Center Dr., San Bernardino, CA 92404; Rick James, (909) 899-6180

Perris Recreation R/C Track, 120 N. Perris Blvd., Perris, CA 92370; (909) 943-6603

R/C Off-Road Raceway, 10810 Talbert Ave., Fountain Valley, CA 92708; Jeff Paul or Bob Fiege, (714) 965-9615

R/C Racing Center and Hobbies, 9842 Channel Rd., Lakeside, CA 92040 (San Diego County); Russ or Cindy Escalera, (619) 443-2270

R/C Sports, 759 E. Monte Vista Ave., Vacaville, CA 95688; (707) 446-5555

Race Prep Raceway, 20115 Nordhoff, Chatsworth, CA 91311; Steve Dunn, (818) 709-6800

RAMS, Murco Plaza, Paseo Padre Pkwy. & Mowry East, Fremont, CA; Mike Alton, (510) 490-8734

Ranch Pit Shop, 1655 E. Mission Blvd., Pomona, CA 91766; Ken Shintani, (909) 623-1506

RCRC Hobbies, 2069 Pacific Coast Hwy., Long Beach, CA 90801; Rhea & Cliff Fisher, (310) 530-7272

Revelation Raceway, 4871 State St., Montclair, CA 91762; Tim Bump, (909) 464-8247

Rickey Racers, 14568 Arrow Hwy., Fontana, CA 92335; (909) 822-0226

R.R.W., 1844 W. Glenoaks Blvd., Glendale, CA 92335; Steve Davenport, (818) 240-2093

San Francisco Radio Controlled Model Car Club, 3136A Turk St., San Francisco, CA 94118; Randy Swan, (415) 221-1978

So. Cal R/C Raceway, 11930 Valley View St., Garden Grove, CA 92645; Jim Blauvelt, (714) 892-0088

SRS Raceway, 915 N. Main St., Salinas, CA, (408) 424-4044

Team Air Racing Club, 18208 Imperial Hwy., Yorba Linda, CA 92686; Don or Nicky, (714) 579-7488

Ultimate Hobbies, 2143 N. Tunstun Ave. #6, Orange, CA 92665; Cliff Murukami, (714) 921-0424

Valley R/C Racepark, 146 S. Santa Fe St., Hemet, CA 92344; Valley Wide Recreation, (909) 654-1505 or 658-4322.

Ventura Roadrunners Freedom Park Raceway, 617 N. Las Posas Rd. #107, Camarillo, CA 93010; Les Abramson, (805) 987-2901

Wendy's Country Store and More/O.R.C. Racing Club, 5475 Skyway, Paradise, CA 95969; Alan Evans, (916) 872-9363

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DELAWARE

4E Hobbies, 1138 West Dupont Hwy., Millsboro, DE 19966; Peggy Evans, (302) 934-1708

Hobby Stop Speedway, RD4, Box 100, Rte. 13, Seaford, DE 19973; Remy Haynes, Jr., (302) 629-3944

FLORIDA

B+T R/C Central, 811 Playground Rd., Ft. Walton Beach, FL 32547; (904) 863-1666

Brantford R/C Speedway, Rt. 3, Box 240, Brantford, FL 32008; (904) 935-0758

Broward County R/C Race Club, Mills Pond Park, Ft. Lauderdale, FL; Ed Augusto, (305) 525-3304

Challenger Sedway at the Willows, Willows Park & Okeechobee Blvd., Royal Palm Beach, FL 33414, Walt (407) 965-2790, or Mark (407) 790-6917

Coral Springs Roadrunners, P.O. Box 9632, Coral Springs, FL 33075; Randy Witte, (305) 474-5934 or Rick Schwartz, (305) 344-1983

First Coast Speedway, 6410 Waltho Dr., Jacksonville, FL 32211; Bob Thompson, (904) 743-2161

5-Fifty-5 R/C Raceway, State Road 555, Bartow, FL 33830; Chuck Nolke, (813) 324-7406

Greater Orlando Auto Racers, 970 Keller Rd., Altamonte Springs, FL 32714; Dave Mottin, (407) 263-4819

Hudson's R/C Raceway, 590 Madeore St., Augustine, FL 32095; Steve Hudson, (904) 826-4050

Hobby World Raceway, 7273 103rd St., Jacksonville, FL; Ray or Greg, (904) 772-9022

Lake Whippoorwill International Speedway, 12345 Narcoossee Rd., Orlando, FL 32827; Bob Hosh, (407) 277-9586; fax (407) 277-2568

Louie Burton's R/C Raceway, 4215 Mustang Rd., Lakeland, FL 33803; Louie Burton, (813) 665-1322

Morris Kohl's Raceway & Hobby, 1107 W. Waters Ave., Tampa, FL 33604; Morris Kohl, (813) 931-1626

My Rose, 1695 W. Indiantown Rd., Jupiter, FL 33458; Mark Watson, (407) 744-3800

NORRA, 3300 Santa Barbara Blvd., Naples, FL 33942; Jerry Pecar, (813) 592-7562 or Mark Benfield, (813) 263-6861

Ocala Radio Control Car Club, 3500 SE 30th Terrace, Ocala, FL 34471; Steve Shook, (904) 694-5147

Paul's Stadium Raceway, 4511 W. Dr. M.L. King Jr. Blvd., Tampa, FL 33614; Paul Surette, (813) 872-8662

PBG R/C Motor Park, 6351 Barbara St., Palm Beach Gardens, FL 33418; Doug Gleason, (407) 743-9791 or Tim Case (407) 627-2608

Pro Hobbies Speedway, 715 N. Lake Pleasant Rd., Apopka, FL 32712; (407) 886-4615

Red's R/C Raceway & Hobbies, Etc. 1010 Creighton Rd., Pensacola, FL 32504; Linda Till, (904) 479-2330

River City R/C Car Club, 9711 Sharing Cross Dr., Jacksonville, FL 32257; Bill Fraden, (904) 268-1948

Sarasota Flat Track, 4900 Fruitville Rd., Sarasota, FL 34232; Jim Wilson, (941) 371-3689


Southwest Florida R/C Raceway, 2425 Rivers Rd., Naples, FL 33964; Clyde Armstrong, (813) 455-1143


Tampa Bay R/C Club, P.O. Box 10224, St. Petersburg, FL 33733; Dick Gillette, (813) 526-0744


Three Flags R/C Racetrack, 1755 East S.R. 44, Wildwood, FL 34785; Don Meares Sr., (904) 748-3870; fax (904) 748-5263


Treasure Coast R/C Club, 4931 Oleander, Fort Pierce, FL 34982; Lou, (407) 464-3207



Winterset Raceway, 5272 U.S. 27 South, Sebring, FL 33870; Mack Mixer, (941) 385-2452



West Coast R/C Club, Lake Park, 17203 N. Dale Mabry, Tampa, FL 33549; Alex, (813) 920-7448; Bert, (813) 654-2554


GEORGIA

Carnesville R/C Speedway, Hwy. 145 S., Carnesville, GA 30521; Bill or Georgia Austin, (706) 335-9044 or 335-3381



Chafee Park Raceway, 1800 Pearl Ave., Augusta, GA 30904; Darren Brooks, (706) 738-8929


Dalton Raceway, 2300 Chattanooga Rd., Dalton, GA 30720; (404) 226-6699


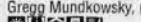
Dry Branch Raceway, 3751 Gailu Dr., Dry Branch, GA 31020; David Stomper, (912) 477-0139; Brandon Mercer, (912) 746-7519


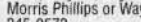
Echeconnee Superspeedway, 2149 Richardson Dr., Macon, GA 31206; Andy Thompson/Cliff Kline, (912) 788-8731


Lake Mayer Raceway, 1430 Dale Dr., Savannah, GA 31406; Pat Rossiter, (912) 354-0098


PDQ Raceway & Hobbies, 341 Senoia Rd., Peachtree City, GA 30269; Richard Burdett, (404) 631-1788



The Racer's Edge, 1530 Hwy. 19 N., Thomaston, GA 30286; Roger or Mark Walls, (706) 648-2637


Ronnie's Hobbies, 17050 Jimmy Carter Blvd., Norcross, GA 30092; Gregg Mundkowsky, (404) 246-0808



Sandy Cross Speedway, Rt. 1, Box 1071, Hwy 51, Royston, GA 30662; Morris Phillips or Wayne Fowler, (706) 245-9573


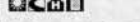
KEY TO SYMBOLS

-  Indoor
-  Outdoor
-  Off-road
-  Oval
-  Dirt oval
-  Carpet
-  Concrete
-  Asphalt
-  On-site hobby shop
-  AC power
-  Auto lap-counting
-  Food available

SHILOH R/C Raceway, 6362 Shiloh Rd., Hahira, GA 31632; Doug Burnett, (912) 794-2507



Silver Wings Raceway, 5611 Riverdale Rd., College Park, GA 30349; M. Bradshaw, (404) 991-2225


Sugar Bowl R/C Speedway, 5272 North Ave., Sugar Hill, GA 30518; Shelby or Jan Bailey, (404) 945-6709


Valdosta Hobbies, 950 N. St. Augustine, Valdosta, GA 31601; Ron Hood, (912) 244-2101


HAWAII


Garden Isle R/C Racers, P.O. Box 3593, Lihue, HI 96766; Eric Leano, (808) 246-8856


Maul R/C Racing Association, 430 Hookahi St., #13, Wailuku, HI 96793; Tritic R/CHobbies, (808) 244-0526


Radio Control Hawaii, 474 Kalanikoa St., S-104, Hilo, HI 96720; Glenn Shiroma, (808) 935-5629


Team PRC Racing Club, 176 Mamo St., Unit G, Hilo, HI 96720; Charlie Kawamoto, (808) 935-3561



IDAHO


Capital Dirt Burners, 1945 N. Teare Ave., Meridian, ID 83642; Jim Brandon, (208) 888-7079



Falls Hobbies & R/C Raceway, 1515 Northgate Mile, Idaho Falls, ID 83401; (208) 529-8650


River City Bandits, 4367 N. Yellowstone, Idaho Falls, ID; Chris Hummer, (208) 523-9846



ILLINOIS

Ameri-Trac, RR 3, Box 242; Mattoon, IL 61938; Ben or Judy Giles, (217) 235-6873



AJ's Raceway, Kessling Road, Dekalb, IL 60115; A.J. Schultz, (815) 756-2772


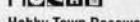
BARR, 809 River Dr., Byron, IL 61010; Jim Haynes, (815) 234-5615


B.G. R/C Racing & Hobbies, 56 E. Ferguson, Wood River, IL 62095; Ben or Judy Giles, (618) 254-6301


C&R Hobbies, 39 E. Jones, Milford, IL 60953; Ray Craighead, (815) 889-4073


Cedarville R/C Speedway, 430 W. Washington, Cedarville, IL 61013; Troy Pokoj, (815) 745-2885



Central Illinois Max Track, 1013 Iowa St., Ashmore, IL 61912; Josh Carter, (217) 349-8824


Diehard R/C Raceway, 300 N. Main, Kewanee, IL 61443; Dick Jennings, (309) 852-3700



Hobby Town Raceway, 4611 W. Rt. 120, McHenry, IL 60050; Mike Hollingsworth, (815) 344-1777


Leisure Hours R/C Raceway, 24121 W. Theodora, Bldg. 1, Plainfield, IL 60544; Scott Hill, (815) 439-1777 (track), (815) 439-1477 (shop)


Machesney Park, 1220 Shappert Dr., Machesney Park, IL 61115; (815) 282-1311



Marty's R/C Hobby, 1335 E. Broadway, Bradley, IL 60915; Gail or Marty, (815) 933-8441



Mitey Motor Speedway, 1109 N. Bloomington St., Rt. 23, Streator, IL 61364; Doug, (815) 672-4212


Monroe R/C Raceway, 26049 Ridgeland Ave., Monroe, IL 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 799-5597



Peoria R/C Raceway, 518 Hillsdale Ave., Peoria, IL 61604; Ray Tighe, (309) 672-1780


R/C Workshop, 3100 S.W. Adams St., Peoria, IL 61605; Al Kretz, (309) 673-4860



Racing Time, 6012 S. Archer, Chicago, IL 60632; Brad or Gino, (312) 767-0773


Radio-Active Raceway, 751 N. Bolingbrook Dr., #15, Bolingbrook, IL 60440; Jim, (708) 759-7557



Redline Raceway, 921 Harding, Calumet City, IL 60409; (708) 862-8181



Shiloh Eagles Superspeedway, 308 N. Virginia Ave., Belleville, IL 62220; (618) 277-6030


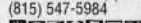
SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901; (618) 549-5885


Slot and Wing Hobbies "Race Place", 1615 W. Springfield, Champaign, IL 61821; (217) 359-1920


Stanton Hobby Shop Inc., 4718 N. Milwaukee, Chicago, IL 60630; Tim Copeland, (312) 283-6446


Superior Raceway, 1706 W. Bradley, Champaign, IL 61821; (217) 359-8073


Super Stock Speedway, 54 Bonnenstiehl Rd., Collinsville, IL 62234; Thomas Smith, (618) 632-2615


Valley Farms R/C Raceway, 706 Bypass 20, Cherry Valley, IL 61016; Dean or Debbie, (815) 332-4516 or (815) 547-5984


Wayne's World Raceway, R.R. 1 Box 246A, Danville, IL 61832; Wayne Henk, (217) 446-3419


INDIANA

Autograph/Race World, 231 Pendleton Ave., Pendleton, IN 46064; Sam Mudd, (317) 778-3386



Dave's ATVs, Hobbies & Raceway, 3035 English Ave., Indianapolis, IN 46201; Dave Sutton, (317) 767-9641



Elliott's R/C Raceway, 2140 North Plate, Kokomo, IN 46901; (317) 452-0163


Hobby Barn Raceway, 1950 Springhill, Terre Haute, IN 47802-9694; (812) 299-5773


K&L Hobbies & Raceway, 3275 North 525W, LaPorte, IN 46350; (219) 324-0353

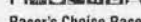

Kokomo Hobby & Radio Raceway, 1108 E. Markland, Kokomo, IN 46901; (317) 457-5060


Main Hobbies, 625 Columbia, Lafayette, IN 47901; Randy Palmer, (317) 742-2045



Maple City Speedway, 1651 W. Franklin St., Elkhart, IN 46516; Pete Russell, (219) 293-1827


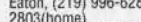
P&T Hobbies and Raceway, RR 2 (Hwy. 60), Mitchell, IN 47446; Paul Weber or Tom Logsdon, (812) 849-6666, fax (812) 332-0018


RC Barn, 310 N 125 W, Monroe, IN 46772; Mark Lengerich, (219) 692-6600


R/C World of Indiana, RR #2, Box 335, Lynn, IN 47355; (317) 874-2464



Racer's Choice Raceway, State Rd. 256, Jefferson Co. 4-H Fairgrounds, Madison, IN 47250; Eric Burns, (812) 866-5521


Race St. Raceway, 112642 Race St., New Castle, IN 47362; Burke or Butch, (317) 521-4704


Rimline Raceway and Hobby Shop, 8 Wood Ct., Hebron, IN 46341; Sandra Eaton, (219) 996-6288(shop), 987-2803(home)


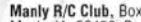
The Rink, 7900 Whitcomb, Merrillville, IN 46410; Don Reiner, (219) 769-8113



IOWA


Delb's Speedway, 423 11th Ave. So., Clinton, IA; Rustis Hobbies, (319) 243-2697


Dubuque R/C Speedway, Dubuque County Fairgrounds, Dubuque, IA 52001; Paul Conlon, (319) 556-2736



Hobby Haven, 7672 Hickman Rd., Des Moines, IA 50322; Jim, (515) 276-8785



M&M Racetrack, 2434 Pilgrim Path, Oskaloosa, IA 52577; (515) 673-6265


Manly R/C Club, Box 23 (Hwy 65), Manly, IA 50456; Bruce Hill, (515) 454-2025



Mr. Car Raceway, P.O. Box 1112, Central Iowa Fairgrounds, Marshalltown, IA 50158; Jim Gossett, (515) 483-2234


Radio Control Raceway Park, 746 South 30th St., Fort Dodge, IA 50501; Bernie Halverson, (515) 576-3780


Sibley Raceway, Osceola County Fairgrounds, Sibley, IA 51249; Allen Reck, (712) 754-2604


Southwest Iowa Hobbies 'n' R/C Raceway, 204 S. Broadway, Red Oak, IA 51566; Debbie Johnson, (712) 623-5513



Wild Bill's Raceway, 901 W. Jones, Knoxville, IA 50138; William Anderson, JR., (515) 842-5973

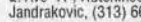

Yukon's R/C, 18517 275th St., Waucoma, IA 52171; David Franzen, (319) 778-2793


KANSAS

Dave's Hobbies & Things, RR2, Box 150, Cherryvale, KS 67335; David Carey, (316) 336-3683



Hobbytown USA, 2016 W. 23rd, Lawrence, KS 66046; Kevin Augustus, (913) 865-0883


M&M R/C Superspeedway, 2400 Broadway, Parsons, KS 67357; Mark and Melissa Brown, (316) 421-6742 or (316) 421-5006


R/C Superspeedway & TQ Pro Shop, 14 E. Ave "A", Hutchinson, KS 67501; Joe Jandrakovic, (313) 665-6633


R/C World Raceway, 217 Brownie Ave., Scranton, KS 66537; Corky or Pam Green, (913) 793-2313


RCRC Raceway, 507 N. 4th, Atwood, KS 67730; Bob Dunker, (913) 626-3261



Shawnee Hobby & R/C Raceway, 4603 Shawnee Dr., Kansas City, KS 66106; Bill Pugh, (913) 384-3211


KENTUCKY


Bluegrass Int'l/Perry's R/C Hobbies, 214 Globe St., Radcliff, KY 40160; William Perry, (502) 351-RACE



Checkered Flag Raceway, 1790 Bryan Station Rd., Lexington, KY 40505; Billy or Jay, (606) 293-6825

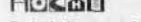

ProTrak R/C Racing, 3451 Cane Run Rd., Louisville, KY 40211; Tony Hardin, (502) 778-2657


West Kentucky R/C Hobbies, 45 Hawkins Loop, P.O. Box 21, Symsonia, KY 42082; (502) 851-3534



LOUISIANA

Cajun R/C Raceway, 4315 Johnston St., Lafayette, LA 70503; Shannon Ralston, (318) 988-6270


Indy Speedway & Hobby, 3753 General DeGaulle Dr., New Orleans, LA 70131; Vince Sheetz, (504) 367-1891


Pontchartrain Hobby Shop, 3755 Pontchartrain Dr., Slidell, LA 70458; (504) 649-1199


Red Dirt Raceway & Hobbies, 324 Pitkin Rd., Leesville, LA 71446; C.J. Hall, (318) 535-9238


T&M Pro Hobbies, 9212 W. Judge Perez Dr., Chalmette, LA 70043; Tom/Melodie Barthel, (504) 271-3111


MAINE

Central Maine R/C

PRO-LINE TRACK DIRECTORY


Megadrome Raceway, Rt. 8, Curran Hwy, North Adams, MA 01247; Bob Blanchette, (413) 743-7223


New England R/C Headquarters, 33 Fr. Devalles Blvd., Fall River, MA 02721; Chuck Gregory, (508) 673-6069


North East Auto Racers, 4 Graf Rd., Newburyport, MA 01882; Dave Thibault, (508) 699-9587


R/C Hobbies & Speedway, 16 Rio Way, Fairhaven, MA 02719; Toni or Roy, (508) 991-5040


Speedworld Hobbies, 134 Water S., Wakefield, MA 01880, (617) 245-3922

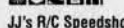

West Street Hobbies, 114C Main St., Medway, MA 02053; Jim, (508) 533-1231


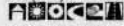
MICHIGAN

Akright Outback Racing, 984 Zimmer Rd., Williamston, MI 48895; Steve Akright, (517) 655-4531


Capital Area Racing Society, The Plumbers Hall, 5405 S. Logan, Lansing, MI; Dave Halsey or Brad Smith, (517) 646-8224 or (517) 484-4028


Chatter Box Racing, P.O. Box 164, Old State Rd., Central Lake, MI 49622; Bill Altermatt, (616) 544-9829


Doug's Dirtway, 5210 Colby Rd., Owosso, MI 48867; Doug Conn, (517) 723-3368


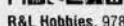
JJ's R/C Speedway, 5713 13 Mile Rd. (corner of 13 and Mound), Warren, MI 48092; (810) 977-0420; fax (810) 977-7290


JT Hobby and Speedway, 825 Golden Ave., Battle Creek, MI 49015; Jerry or Dan, (616) 965-0571


Ludington R/C Raceway, 1483 N. Dennis Rd., Ludington, MI 49431; (616) 843-4654


MCRC Raceway, 4601 Page Ave., Michigan Center, MI 49023; Sam Sprang, (517) 787-9161


Newberry R/C Raceway, RR 3 Box 2860, McMillan, MI 49853; Dustin Hart, (906) 293-3044


Pointe R/C, 2119 Summerton Rd., Mt. Pleasant, MI 48858; (517) 773-5711


R&L Hobbies, 9782 Portage Rd., Kalamazoo, MI 49002; Rex Simpson, (616) 323-3686; fax (616) 329-1744


Rainbow Gardens, 600 North Shore Ave., Crystal, MI 48818; Mike or Sandy, (517) 235-4298

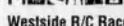

Rider's Super Speedway, 42040 Koppernick Rd., Canton, MI 48187; Brent Martin, (313) 981-8700 or (313) 451-5599



Scale Racing Center, 3432 Highland Rd., Waterford, MI 48328; Larry Rossi, (810) 683-5529


T/A Raceway, 119 N. Michigan, Big Rapids, MI 49307; Harvey, (616) 796-3217


Vicksburg Off-Road R/C Raceway, 50201 Silver St., Vicksburg, MI 49097; Jeff Schroeder, (616) 375-8591



Village Hobbies-n-Crafts, 195 N. Elm, Hesperia, MI 49421; Alan or Fran, (616) 854-1374

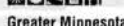

W.A.R.R., 1025 Gilmore Ave., Winona, MI 59887; Patrick Smith, (507) 452-6732



Westside R/C Raceway, 4335 Lake Michigan Dr., Grand Rapids, MI 49504; George Orlikowski, (616) 791-9902. (Open May through August)


MINNESOTA

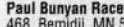
Badger R/C Raceway, 404 Tamarack St., Box 101, Badger, MN 56714; Keith Cumming, (218) 386-2001



C/S Speedway, 312 N. Bdwy, Crookston, MN 56716; Caesar Kaiser, (218) 281-6665


Grand Rapids R/C Speedway, 2209 Hwy 2 East, Grand Rapids, MN 55744; Aaron Voges, (218) 326-6751


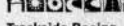
Greater Minnesota Racetrack, 3302 Southway Dr., St. Cloud, MN 56301; Jon Jackson, (612) 252-9768



Larry's Raceway Park, 105 3rd Ave. NE, Glenwood, MN 56334; Dan Winter, (612) 634-5246



Minn-E-Golf & Hobby, 9100 Park Ave., Elk River, MN 55330; (612) 441-8365


Paul Bunyan Raceway, Rte. 1, Box 468, Bemidji, MN 56664; Brad Trask, (218) 243-2749


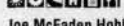
Range Racing World R/C Speedway, 412 Jones St., Eveleth, MN 55734; Bill, (218) 744-4423



Southside Speedway, 2241 Marion Rd. SE, Rochester, MN 55904; Kevin Guy, (507) 281-3233



Trackside Racing, 2300 Myrtle Ave., St. Paul, MN 55114; Winton Otelle, (612) 644-3424


Wild West R/C Speedway, 2822 Piedmont Ave., Duluth, MN 55811; Roger Deloach, (218) 727-6248



MISSISSIPPI

Fast Freddy's Raceway, 20390 Hwy. 49, Saucier, MS 39574; Mark Payne, (601) 832-0315


Joe McFadden Hobbies, 1619 51st Ave., Meridian, MS 39307; Joe McFadden, (601) 483-7000


Rural Hill Raceway, 2535 Tabernacle Rd., Columbus, MS 39702; Jeffrey Alvey, (601) 328-9429


Small Cars Unlimited, 820 Cooper Rd., Jackson, MS 39212; (601) 372-FAST


Wheeler R/C Raceway, Rt. 4, Box 569A, Booneville, MS 38829; Doug Holt, (601) 365-3439 or (601) 642-5275


MISSOURI

All Seasons Hobby, 152 O'Fallon Plaza, O'Fallon, MO 63366; Bob Daniels, (314) 281-8767


B&L Hobbies & Raceway, 2800 Anchor Dr., Park Hills, MO 63061; Bob Marler, (314) 431-9444


Blue Vue Speedway, 12019 E. 47th St., Kansas City, MO 64133; Mark Randol, (816) 358-0238


Columbia R/C Trax, 1502 W. Bus Loop 70 (Exit 125), Columbia, MO 65202; Gary Phillippe, (314) 682-3993


Extreme Edge Speedway, 119 W. Liberty St., Farmington, MO 63640; Ken Boren, (314) 756-4122


Fast Trax Racing Assoc., mailing: 206 N. Water, Nixa, MO 65714; track: 318 Boonville, Springfield, MO 65082; Juan Montell, (417) 725-4337

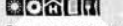

K.C. R/C Raceway, 11426 N. Walnut, Kansas City, MO 64155; Justin Baugh, (816) 436-3638



Lafayette Riverside Raceway, P.O. Box 9683, Marshall Rd., Kirkwood, MO 63122; Don Laningham, (314) 966-8912


Mid-Mo R/C Raceway, 400 W. 2nd., Sedalia, MO 65301; (816) 826-5113

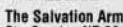

Suppenbach Winter Racing, Route 5, Box 66, Pleasant Hill, MO 64080; Larry Suppenbach, (816) 987-5828

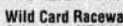

MONTANA


Bozeman R/C Powerhouse Track, 2825 W. Main (west side of Main Mall), Bozeman, MT 59715; (406) 586-0071


Stormer Raceway & Slot Motorplex, P.O. Box 126 Hwy 2 East, Glasgow, MT 59230; (406) 228-4569


NEBRASKA

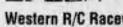
Mr. Bill's, 450 West 2nd St., Hastings, NE 68901; Bill J. Ries, (402) 462-4865



The Salvation Army, 4032 Harrison St., Omaha, NE 68147-1012; Lt. Michael Delashmitt, (402) 634-3414


Wild Card Raceway, RR1 Box 137, Columbus, NE 68601; Roger F. Miller, (402) 564-7743


NEVADA


Radio Controlled Race World, 905 So. Rock Blvd., Sparks, NV 89431; James or Barbara Balough, (702) 356-2882


Silverbolt Speedway, 7274 Hardtrack Cir., Las Vegas, NV 89119; Mike, (702) 896-3577


Western R/C Raceway, 6404 Richmar, Las Vegas, NV 89139; Randy Grigg, (702) 897-7227


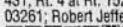
NEW HAMPSHIRE

Economy R/C Speedway, 4 Maple St., Winchester, NH 03470; Harold Thomas, (603) 239-4482 or 239-6470


Fastracker Club, 520 Washington St., Keene, NH 03431; Bill Phillips or John O'Connor, (603) 352-0811 or 357-8393



Hobby Etc., Heritage Place, Rt. 101A, Amherst, NH 03031; (603) 595-8549


Outback Raceway, East Washington Rd., P.O. Box 508, Bradford, NH 03221; Jim or Bill Thompson, (603) 938-2425



Robert's Railroad & Hobbies, Box 431, Rt. 4 at Rt. 152, Northwood, NH 03261; Robert Jeffers, (603) 942-5193



NEW JERSEY

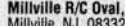
Bob's American Raceway, 142 Wilson Ave., Englishtown, NJ 07726; Bob Morrisio, (908) 446-3737



Family Hobbies Raceway, 3576 N.W. Blvd. & Weymouth Rd., Vineland, NJ 08360; Linda Vogel, (609) 696-5790


Golden Hobbies Raceway, 415 Erial Rd., Pine Hill, NJ 08021; John or Iona Golden, (609) 782-1222

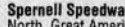

Hobby Shop Speedway, 23 State Hwy NJ 08822; Patrick Clark or Eric Lee, (908) 806-7244 or (609) 737-1224


Jefferson Speedway, 5494 Berkshire Valley Rd., Oak Ridge, NJ 07438; (201) 697-7525



LBRA Track, 392 Warburton Pl., Long Branch, NJ 07740; (908) 222-5122



Millville R/C Oval, 114 N. High St., Millville, NJ 08332; William Denstoz, (609) 327-4640


Pit Stop Dragway, Campus Rd., Totowa, NJ 07512; Kimberly Frank, (201) 956-FACE (7223)



The Race Place, 1151 Hwy. 33, Farmingdale, NJ 07731; John Fary, (908) 938-5215


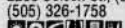
Spernell Speedway, 2301 Rte. 9 North, Great American Flea Market, Howell, NJ 07731; Mitch, (908) 577-9191


On Trax Hobbies, 1549 Rte. 70, Browns Mills, NJ 08015; Joseph DiGirolamo, (609) 735-0422


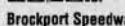
Zeppelin Hobbies, 92 Rt. 23N, Riverdale, NJ 07457; Lou Ballini, (201) 831-7717


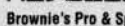
NEW MEXICO

Las Cruces R/C, 3110 Hillsdale, Las Cruces, NM 88005; Bob Risner, (505) 523-1962


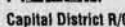
Meerscheid R/C Raceway Park, Walnut and Hadley, Meerscheid Park, Las Cruces, NM 88001; Wayne Ward, 2230 Coleen Ct., (505) 523-4863, (505) 326-1758


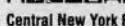
NEW YORK

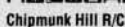
Beach Hill Speedway, 1760 Beach Hill Rd., Watkins Glen, NY 14891; Jim Riley, (607) 535-2616


Brockport Speedway, 6000 Sweden Walker Rd., Brockport, NY 14420; Gil & Betty Glidden, (716) 637-6224


Brownie's Pro & Sport Hobbies, 124 Bennett St., Staten Island, NY 10302-1426; John Brown, (718) 727-2194


C&D Raceway, 12542 NYS Rte. 12E, Chaumont, NY 13622; Chris or Don Bourquin, (315) 649-5403


Capital District R/C Racers, 27 Venus Dr., Albany, NY 12205; Keith Green, (518) 783-7859


Central New York R/C Auto Racers, Martin St., P.O. Box 116, Rome, NY 13440; John Orr, (315) 336-5140


Chipmunk Hill R/C Speedway</

Tri County Remote Control Car Club,
662 County Highway 122, Gloversville,
NY 12078; Jim Sprouse, (518)
725-1279



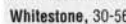
Ulster County Speedway, P.O. Box 71,
New Paltz, NY 12561; Joe Colombo
Jr., (914) 754-7664



Wall's Hobby, 2 Dwight Park Dr.,
Syracuse, NY 13209; (315) 453-2291



Westfield R.C. Speedway, 27 Clark
St., Westfield, NY 14787; John or
Jared Lindstrom, (716) 326-2339



Whitestone, 30-56 Whitestone Expy.
(Dept. of Motor Vehicles), Flushing,
NY 11374; Rudolf Ardilla, (718) 966-
6155



ZOAR Road Speedway, 15318 Armes
Cl., Gowanda, NY 14070; David &
Gordon Ackler, (716) 532-9463



NORTH CAROLINA

The Antique Barn, 2810 Forest Hills
Rd., Wilson, NC 27893; Steve
Seidinger, (919) 237-6778



Badin Shore Raceway, 1730 Jackson
Lake Rd., High Point, NC 27263;
Jimmy or Tim Martin, (910) 431-6407



C/C Hobby Speedway, 8358 U.S. Hwy.
220 Bus. N., Randleman, NC 27317;
Steve & Mary Cox, (910) 495-3482



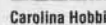
C&H Raceway, 1400 N. Cannon Blvd.,
Kannapolis, NC 28083; Camera &
Hobby Shop, (704) 933-5321



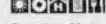
Cape Fear Speedway, 207 Harley Rd.,
Wilmington, NC 28401; Bob Justice,
(910) 452-2354



Carolina Dragway, 907-D Warsaw Rd.,
Clinton, NC 28328; (910) 592-4569



Carolina Hobbies R/C Raceway,
Route 1, Box 158, Taylorsville, NC
28681; Kim & Roseanne Kulawik,
(704) 495-4040



Carolina Motorsports, 1517
Blandwood Dr., High Point, NC
27360; (910) 885-3713



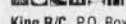
Clapp's R/C Motor Speedway, Rt. 4,
Box 300A, Siler City, NC 27344; Al
Clapp, (919) 663-3198



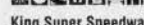
Clinton R/C Raceway, 907-C Warsaw
Rd., Clinton, NC 28328; Corbett
Marshburn (919) 592-9489



Hobby Club R/C Raceway, 1241 Buck
Jones Rd., Raleigh, NC 27606; Hobby
Club, (919) 460-8838



King R/C, P.O. Box 897, Five Forks
Village, King, NC 27021; Chris Smith,
(910) 983-3969



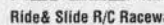
King Super Speedway, 143 Industrial
Dr., P.O. Box 897, King, NC 27021;
Chris Smith, (910) 983-5598 or (910)
883-3969



Mine Hole Gap R/C Raceway, 1297
Charlotte Hwy., Asheville, NC 28730;
Steve Shultz, (704) 628-3020



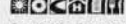
Motorlead R/C Raceway, 125 Park St.,
Canton, NC 28716; (704) 648-7911



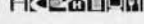
Ride & Slide R/C Raceway, 5319
Yadkin Rd., Fayetteville, NC 28303;
Jim Woodman (910) 425-5276 or Bill
Culbertson (910) 867-4202



S&B Speedway & Hobbies, Rt. 1, Box
311A, Farmville, NC 27828; Ricky
Strickland, (919) 753-4422



Sandhills Raceway Inc., US #1
South, Aberdeen, NC 28315; (919)
944-7414



NORTH DAKOTA

Hacienda Hills Speedway, 20
Hacienda Hills, Minot, ND 58701;
Kenny Duchscherer, (701) 839-4419



Northern Mini Racers, P.O. Box 415,
Minot, ND 58702; Roger Lee, (701)
839-5294



Surrey International Raceway, RR 1,
Box 37, Norwich, ND 58768; Marlen
Lenton, (701) 728-6760



Valley Hobbies Inc., 2714 Main Ave.,
Fargo, ND 58103; Marshall Skare,
(800) 493-9971



OHIO

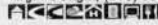
Aerotech Raceway, 409 Applegrove
Rd., North Canton, OH 44720; (216)
499-1300



Classic Hobbies, 1994 E. Waterloo Rd.,
Akron, OH 44312; Walt Ellis, (216)
733-6400



C/R Hobbies and Raceway, 323
Center St., Ashtabula, OH 44004;
Virginia Gagat, (216) 992-3833



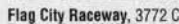
CORCAR/Sams Club, 128 Amity Rd.,
Galloway, OH 43119-8732; Bill
Stevenson, (614) 870-7159



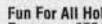
D&J R/C Raceway, 801 W. Market St.,
Orville, OH 44667; Don Yoder or
Mark Nussbaum, (216) 682-4266



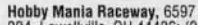
D&S Hobbies Raceway, 7701 Crile Rd.,
Concord, OH 44027; (216) 354-2112



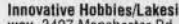
Flag City Raceway, 3772 C.R. 18,
Findlay, OH 45840; Ruth Hubbard,
(419) 422-5589



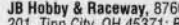
Fun For All Hobby Center and
Raceway, 675 College Dr., Batavia, OH
45103; Steve Smith (513) 732-0440



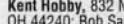
Hobby Mania Raceway, 6597 Route
224, Lovellville, OH 44436; (216)
536-8282



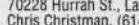
Innovative Hobbies/Lakeside Speed-
way, 3427 Manchester Rd., Akron, OH
44319; (216) 645-1333



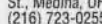
JB Hobby & Raceway, 8760 St. Rt.
201, Tipp City, OH 45371; Bob Curtis,
(513) 845-8222



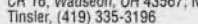
Kent Hobby, 832 N. Mantua St., Kent,
OH 44240; Bob Sabo, (216) 673-0422



Lafferty R/C Raceway, Box 153,
70228 Hurrah St., Lafferty, OH 43951;
Chris Christman, (614) 968-4818



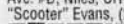
Medina R/C Raceway, 754 N. Court
St., Medina, OH 44256; Bill Aholt,
(216) 723-0255



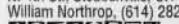
Mr. T's R/C Super Speedway, 5540
CR 16, Wauseon, OH 43587; Nick
Tinsler, (419) 335-3196



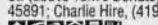
Performance R/C Club of Ohio, 2206
13th St. NE, Canton, OH 44705; Greg
Ledbetter, (216) 453-7089



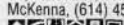
Scotlers Hobby Hut, 234 Robbins
Ave. #D, Niles, OH 44446; Dave
"Scooter" Evans, (216) 544-9411



Steel Valley Hobbies & Raceway, 157
N. 4th St., Steubenville, OH 43952;
William Northrop, (614) 282-3003



Van Wert R/C Raceway, 112 W. Main
St. (above Tom's Donuts), Van Wert, OH
45891; Charlie Hire, (419) 238-4917



Y-City Hobby & Speedway, 120 S. 6th
St., Zanesville, OH 43701; Kevin
McKenna, (614) 455-3025



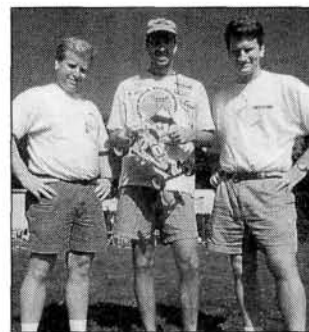
RACING TO BRING YOU THE BEST!

PRO-Line®

We Covered the World!

In 1993, Pro-Line captured the World Championships of Off-Road Racing in Basildon, England. Both 2WD and 4WD classes were swept by Pro-Line drivers using the revolutionary soft XTR rubber compound. At this year's Off-Road World Championships, Pro-Line again finished a winner. We covered the world as Pro-Line's new Square Fuzzies—in the new, super-soft M2 compound—raced into Japan's Yatabe Arena and dominated both 2WD and 4WD. Proof in the tires: Matt Francis reached for a pair of Square Fuzzies (#8089M2) to TQ in 2WD, and then he used the Square Fuzzies to win the 1995 IFMAR Off-Road World Championships. Three out of the top four finishers in the 2WD A-Main used Pro-Line tires for a competitive edge; even World Champion Masami Hirotsaka, who finished second, reached for Pro-Line's new Square Fuzzies for his 2WD car.

In 4WD, Brian Kinwald TQ'ed on a set of Square Fuzzies, and in



Todd Mattson and Tim Clark of Pro-Line with 2WD World Champion Matt Francis.

the A-Main finals, 10 out of 10 drivers chose Pro-Line for the front and back of their 4WD cars. In the end, Mark Pavidis drove his 4WD Yokomo car to the winners' circle with Pro-Line's Square Fuzzies to reign as the new 4WD IFMAR Off-Road World Champion. Pro-Line's Square Fuzzies provided the ultimate traction in the most important international event of the year!

Square Fuzzies have already been tested and raced across the United States, and they're proven performers when additional traction is necessary. Square Fuzzies will only be offered in Pro-Line's exclusive M2 compound (super-soft), and a free set of foam inserts will be included with each pair. Special thanks to Matt Francis, Mark Pavidis, Cliff Lett, Mark Francis, Masami Hirotsaka, Craig Drescher and all the other drivers who chose Pro-Line tires at the 1995 IFMAR Off-Road World Championships in Japan.



#8089M2 Square Fuzzies

FEATURES

- Square ultra-fine-pin design
- Low-profile "flat" carcass with reinforced interior and sidewall
- M2 super-soft compound
- Performance design for additional traction and control on the hardest racing surfaces

Product name: Square Fuzzies
Fits: 2.15-inch to 2.2-inch rear wheels.

Part number: 8089M2
Price: \$12.50

Racing to Bring You the Best!

RACING TO BRING YOU THE BEST!

PROTOform



CIRCAR Champ

#1210R—1996
T-Bird Hi Speed

Protoform race bodies continued to be the bodies of choice by winning drivers throughout the summer of '95.

Sean Cochran continued his domination of the high banks at Indy with another big win at the Velodrome Nationals. Mike Blackstock ran the second ever 19-lap run on his way to a TQ and a new track record. Mike Boylan smoked 'em in the Enduro to make it a clean sweep for Protoform T-Birds.

The Chevrolet Monte Carlo has without a doubt been the dominant car in NASCAR racing in 1995. We've been excited to see the performance record of the Protoform Monte Carlo (#1209) live up to the reputation established by its full-size counterpart.

Shane Kocker came down from Pennsylvania to the heart of NASCAR country—King, NC—to take on the "good old boys" at the CAM Challenge Race. At the end of a very hot and gruelling 600 laps, Shane took his Monte Carlo home a winner—three laps ahead of the field.

At the NORRCA Nationals in Bakersfield, once again, Protoform-equipped racers set the pace. In winning the Factory Modified title, Tony Neisinger held off the very fast Eric Steenhoven with his Monte Carlo-bodied Spectre. In the Superspeedway Enduro, Tony claimed his second Nationals title of the day by finishing ahead of Kirby Hand, Derek Povah and Bill McAneney. All ran the #1209 Monte Carlo body.

As we begin to look forward to the 1996 season, Pontiac will have a contender for the Winston Cup Crown—the all-new '96 Grand Prix. It looks as if it will be a "killer shape" for R/C stock cars (again). Be sure to check out Protoform's all-new 1996 Grand Prix (#1214).

RACING TO BRING YOU THE BEST!

P.O. Box 456, Beaumont, CA 92223;
(909) 849-9781; fax (909) 849-2968

OKLAHOMA

Adams Creek R/C Speedway, 5207 S. 194th E. Ave., Broken Arrow, OK 74014; John Beighlie, (918) 355-1416
AOC

Competition R/C, 180 SE 89th, Oklahoma City, OK 73149; James or Louise Brown, (405) 634-0809
AOC

Coweta Hobby & Speedway, 310 S. Broadway, Coweta, OK 74429; Deriald Seabolt, (918) 486-3948
AOC

Off-Road Car Assoc. of Tulsa, 9720 Swan Dr., Broken Arrow, OK 74014; George Gooch, (918) 486-4528
AOC

Remote Control Race Course, 400 S. Vermont Ave., Suite 104, Oklahoma City, OK 73108; Rick or Steve, (405) 947-RACE
AOC

Wild Country Speedway, 127 South Main, Porter, OK 74454; Charles McCollough, (918) 685-0372 or (918) 687-1686
AOC

OREGON

Cathie's R.C. World 443 So. Calapooia, Sutherlin, OR 97479; Wes/Cathie Buzzard, (503) 459-2746
AOC

Competition Racing Assoc., 17941 NE Glisan, Portland, OR 97230; Mark Taylor, (503) 257-0796
AOC

Junior Vehicle Speedways, 3090 Starwood Ct., Medford, OR 97501; (503) 779-3090
AOC

North Lawrence Raceway, 36 N. Lawrence, Eugene, OR 97401; Gary Hill, (503) 484-9857
AOC

Pit Stop Hobby, 634 N. Coast Hwy., Newport, OR 97365; Richard Wood, (503) 265-2825
AOC

R/C Plus Hobbies Raceway, 2029 25th St. SE, Salem, OR 97302-1130; Ron Smith, (503) 364-9188
AOC

R/C Speed Center, 2810 N. Pacific Hwy., Medford, OR 97501; (503) 779-8298
AOC

Yamhill County R/C Car Club, 722 Morgan Ln., McMinnville, OR 97128; Larry Rucker, (503) 472-7234
AOC

PENNSYLVANIA

A&D's Bumps & Jumps, RR7, Box 7395C, Stroudsburg, PA 18360; Dan Ambrosio, (717) 424-1750
AOC

Benders Junction Speedway, 2300 Benders Dr., Bath, PA 18014; Gerald Wambold Jr., (610) 759-0161
AOC

Brookville Hobby Shop, 170 Main St., Brookville, PA 15825; Mark Tonell, (814) 849-7385
AOC

CEB Motors R/C Div., 5743 Molly Pitcher Hwy., Marion, PA 17235; Charlie Booze, (717) 375-4635
AOC

Clearfield R/C Car Club, P.O. Box 297, Clark Hill Rd., Hyde, PA 16843; Joe Welch, (814) 765-3045
AOC

Clearfield R/C Raceway, 4 Capricorn Ct., Clearfield, PA 16830; Shawn Richards, (814) 765-5608
AOC

Cressona Mall Speedway, Rt. 61, Pottsville, PA 17901; (717) 385-3506
AOC

DC Ultra Trax, 13 York Rd., Wycombe, PA 18974; David Cowan, (215) 672-5200
AOC

Dreamboat Hobbies, 2810 Pennsylvania Ave. W., Warren, PA 16365; Louie Dussia, (814) 723-8052
AOC

East St. Raceway, 736 E. Railroad Ave., Verona, PA 15147; (412) 826-0602
AOC

Henning Scale Models R/C Raceway, 128 S. Line St., Lansdale, PA 19446; Bill Henning, (215) 362-2442
AOC

Hipkins Hobbies Raceway, 402 W. Avondale-New London, West Grove, PA 19390; Doug Hipkins, (215) 869-8585
AOC

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Hobby House Raceway, Downingtown Marketplace, Downingtown, PA 19335; J.T. Nelson, (610) 269-1300
AOC

Koontz's Home & Hobby Center, 1205 Hoover St., Pittsburgh, PA 15204; (412) 331-3866
AOC

Kranzel's R/C Raceway & Hobbies, 415-B Bosler Ave., Lemoine, PA 17043; David or Stuart Kranzel, (717) 737-7223
AOC

Marshall's R/C Raceway, RR 4, Box 640, Honesdale, PA 18431; Bill or Dot Marshall, (717) 729-7458
AOC

Modellbahn OH Hobbies, 1145 E. Philadelphia Ave. (Rt. 73), Gilbertsville, PA 19525; (215) 367-5925
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Mt. Laurel Speedway, 835-8 Hiester Lane, Reading, PA 19605; Joe Vaccaro, (215) 921-0176
AOC

The Mushroom Bowl, 812 W. Cypress St., Kennett Square, PA 19348; Joe, Bruce, or Drew, (610) 444-1850
AOC

Owens Race-A-Rama, RR 2, Box 98 F, Hunlock Creek, PA 18621; Rany Owens, (717) 477-3220
AOC

Pinion Twisters, 3M Plant, Green Ln. and Mitchell, Bristol, PA; John (215) 632-9744, Bob (215) 945-0325
AOC

Pit Stop Hobbies, 262 W. Main St., Mount Joy, PA 17552; James Stouder Jr., (717) 653-6222
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Pro Challenge Raceways, Wycombe Ave. (P.O. Box 536), Lansdowne, PA 19050; Bob Paulavage and Don Fekkes, (610) 622-7651
AOC

Prop & Wheels Raceway, 139 W. Broad St., Tamaqua, PA 18252; Gil Walters, Prop & Wheels Hobbies, (717) 668-2288
AOC

R/C Raceway 519 Broadway, Hanover, PA 17331; Chris Shaffer, (717) 633-9490
AOC

Riverside Raceway, PA Ave. W & Hickory, Warren, PA 16365; Jeff, (814) 723-4211
AOC

Road Runner Raceway, 1027 E. 7th St., Bloomsburg, PA 17815; John, (717) 784-1260
AOC

S.A. Hi Banks, Hahn's Dairy Rd., Palmerton, PA 18071; Scott Andrews, (610) 377-6123
AOC

Sinking Spring Race Center, 237 South Hull St., Sinking Spring, PA 19608; Randy Gelsinger, (610) 670-0760
AOC

South Mountain R/C Speedway, 357 Furnace Rd., Wernersville, PA 19565; George Merkel, (215) 267-4736
AOC

Staub Bros. R/C Speedway, 31 Locust St., Gettysburg, PA 17325; Todd or Scott Staub, (717) 334-5445
AOC

TC's R/Cs, 1537 Freeport Rd., Natrona Heights, PA 15065; Tom Coriale, (412) 226-8802
AOC

T-N-T Raceway, Randolph Rd., Great Bend, PA 18821; Ed Kraft, Rd. 1 Box 199C, Hallstead, PA 18821, (717) 967-2604 or Frenchie (607) 775-1756
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Wagonhill Hobbies, 967 New Castle Rd., Rt. 422, Butler, PA 16001; Jeff Hyatt, (412) 865-9877
AOC

Willow Mill Speedway, 37 N. Season's Dr., Dillsburg, PA 17019; George Verbovitz, (717) 432-4445
AOC

Wagonhill Hobbies, 967 New Castle Rd., Rt. 422, Butler, PA 16001; Jeff Hyatt, (412) 865-9877
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PRO-LINE TRACK DIRECTORY

MSA R/C Racing, Rt. 12 Box 489 B, Crossville, TN 38555; D.R. Findley, (615) 456-0027

Robertson's R/C Raceway, 175 Seavers Rd., Jackson, TN 38301; Travis Robertson, (901) 424-6423

Sparta Raceway Park, 32 N. Main St., Sparta, TN 38583; Carl (Buddy) Elrod, Rt. 5 Box #652, Sparta, TN 38583, (615) 836-8450 or (615) 761-3407

Tri-County R/C Raceway, 919 Little Dogwood, 1312 Kingston Hwy., Kingston, TN 37763; Dwayne Romine, Kyle Romine, (615) 376-2330, 376-9955

TEXAS

AA Raceway, 1617 Foomey Rd., Austin, TX 78704; Wolf Gurnford, (512) 474-8277

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Big Mike's R/C Raceway, 1405 W. Cotton St. (behind the Locker Room), Longview, TX 75604; (903) 297-7814

Flip & Spin R/C, 5957 Jones Rd., Bryan, TX 77807; Garland Crabb, (409) 822-7311

Hal's Hobby Raceway, 1440 Bessemer, El Paso, TX 79936; (915) 591-2213

Heart of Texas Hobbies & Raceway, 309 W. Hwy. 190, Copperas Cove, TX 76522; Larry Gholson, (817) 547-7505

Hobbycraft Speedway, 819 N. Main St., Corsicana, TX 75110; Keith Hoffman, (903) 872-6761

Hobbytown USA, 7516 FM 1960 W., Houston, TX 77070; Fred Pfafman, (713) 955-7097

Hobbytown USA, 999 E. Basse Rd., Suite 177, San Antonio, TX 78209; Joe Sena or Clark Baisdon, (210) 829-8697; fax (210) 829-8707

Houston R/C Hobbies, 6338 Skyline Dr., Houston, TX 77057; Lynn Cramer, (713) 266-6006

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Rivercity Speedway, 11731 Wetmore, San Antonio, TX 78247; Ralph Hernandez, (210) 359-6870; Joe Toledo, (210) 341-5652

Star/Car Raceway, 5802 Patton St., Corpus Christi, TX 78415; Mike Hellums, (512) 289-0066; Race Hotline, (512) 881-6105.

Star Hobbies, 1200 Hwy. 100, Box 5, Port Isabel, TX 78578; Fred Carr, (512) 943-7546

T&T Eagle, 161 W. Spring Creek Pkwy., #601, Plano, TX 75023; Tony Welborn, (214) 517-0562

Texas Speedway, 6707 Chimney Rock, Bellaire, TX 77401

Wild Bill's Raceway, 535 E. Shady Grove, Irving, TX 75060; Lynn Morgan or Jerry Williams, (214) 438-9224

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Power Hobbies and Raceway, 135 No. 900 E., Suite 7, St. George, UT 84770; April Nutley, (801) 628-8747

WOR Raceway, 3170 Brinker Ave., Ogden, UT 84401; Brian Worton, (801) 393-2530

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Bradford R/C Racing, Main St., Bradford, VT 05033; Seth Bean, (802) 222-9674

Mike's Hobbies & Raceway, 162 N. Main St., Rutland, VT 05701; Stephen Rachlis, (802) 775-0059

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Cooper's R/C Raceway, Rt. 4, Box 122B, Chatham, VA 24531; (804) 724-4182

Crossroads Hobbies R/C Raceway, 1104 W. Main St., Salem, VA 24153; Ronnie Black, (703) 387-3414

Dad's Day Off Hobbies & Speedway, 940 Radford St., A-1 Flea Market, Christiansburg, VA 24073; David A. Schuh, (703) 382-9811

Fairstone R/C Speedway, Rt. 4, Box 918, SR635 Goblinton, Stuart, VA 24171; Pat Moon Jr., (540) 930-3984

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The Hobby House, 116 Edds Ln., Sterling, VA 20165; Ron Beckman, (703) 444-0333

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Hale's R/C Raceway Park, 10611 136th St. E. Puyallup, WA 98374; Walt Hale, (206) 845-7675

Home Town Hobby, 116 N. Main Ave., Ridgefield, WA 98642; (206) 887-1769

L&L R/C Raceway, 15818 S.E. 287th, Kent, WA 98042; Bob Lewis, (206) 631-1664

Performance R/C, P.O. Box 955 (1673 Cedarale Rd.), Mt. Vernon, WA 98273; (206) 755-9464

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Rattlesnake R/C & Raceway, Brag T-121 Big Pasco, Pasco, WA 99301; Bill Brandt, (509) 545-4495

Schmidt's Auto Parts, 10305 Old Hwy. 99, Marysville, WA 98271; Jon Falla, (206) 653-8838

Skagit R/C Raceway, 1699 Rounton Ln., Burlington, WA 98233; Jeff, (206) 724-3453 or Craig, (206) 755-9464

Spokane Indoor Raceway, 6422 E. 2nd Ave., Spokane, WA 99212; Dave Matson, (509) 534-RACE

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Terror Raceway, 8012 S. Tacoma Way, Tacoma, WA 98499; Dave Kleinman, (206) 584-8659

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BAFB R/CAR, Bolling Air Force Base, Washington, D.C. 20332; Charles Leadbetter, (301) 297-4524

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Fulton's R/C Raceway, 2646 Chapline St., Wheeling, WV 26003; James Fulton, (304) 233-5355

Left Turn Hobbies, 100 Saco Ln. (by Post Office), Glen White, WV 25849; Stretch, (304) 255-3930

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Bayland Hobbies, 951D Ashwaubenon, Green Bay, WI 54304; Dan or Jay Boettge, (414) 339-8288

JJ's Dirt Heaven, 6028 County K, Champion, WI 54229; (414) 866-9096

NARCAR Raceway, 4331 E. Wall St., eagle River, WI 54521; Mary O'Brien, (715) 479-5154

Radio Mania, 129 Harrison St., North Prairie, WI 53153; Bill Bowes, (414) 392-9515

S&N's Trackside Hobbies and Raceway, 6045 N. Green Bay Ave., Milwaukee, WI 53209; Scott Ernst, (414) 351-1910

Sparta R/C Raceway, R&S, Sparta, WI 54656; Eric Johnson, (608) 269-6613

WYOMING

Collectable Creations Off-Road Oval Track, 1790 Dell Range Blvd., Cheyenne, WY 82009; Phil Severson, (307) 632-2156

AUSTRALIA

Aubry R/C Car Club, Aubry Showgrounds, Aubry, NSW 2640; Ron Langman, 060-247-128

Canberra Off-Road Model Car Club, Goyder St., Narrabundah, ACT 2604; Graham Brown, 61-6-241-3070

Central Coast ORCC, EDSACC Sports Complex, Bateau bay, N.S.W. Australia 2261; Peter J.Knight, 011-61-43-693-698

Illawarra RECCC, Croome Sporting Complex, Albion Park Rail, NSW 2527; Mel or Andrew, 042-714-683

Lakeside R/C Racing Car Club, Hollywood Dr., Lansvale, NSW 2166; R. Bartolozzi, 62-2-907-9800

Wodonga R/C Car Club, 11 Murphy St., Wodonga, VIC 3690; Ron Langman, 011-6160-247-128

BELGIUM

Cartroules Indoor Buggy Track, jan Moonsstraat 52-56, 2160 Wommegem, Belgium; Guy Ermes, 32-3-326-51-15; fax, 32-3-326-51-01

M.B.V. Parc de Reist, Tenierslaan, 28, B1910 Kampenhout, Belgium; Frank Mostrey, fax (32) 0-16657518

MBV-Kampenhout, Tenierslaan 28, Kampenhout B1910, Belgium; Frank Mostrey, phone and fax (0) 16-65-75-18

MRCZ, Centrum De Burg, Belgium; Montie, 75-71-63

Model Racing Club Oudenaarde, Scheldelant, 9700 Oudenaarde, Belgium; A. Chanterle, 32-55-31-36-48; fax, 32-55-30-19-12

BRAZIL

Brasilia R/C Motor Circuit, Estacionamento do Estadio Mane Garrinchao, Brasilia, DF 70000, Brazil; Alexandre (Alex), 55-061-273-7205

Hobby Center, SQS-210 BLH Apt. 204, Brasilia, DF-Brasilia 70.273; 061-242-0488

Jungle Drive, Rua Alberto Maranhao, No. 219, Rio de Janeiro, 21940-490; Paulo Brito, (021) 3960851

Off Roaders, Av. Guillerme Dummont Villargis, 317, Sao Paulo, CEP 05640; Waldir Ielpo, (055) 011-260-5628; fax (055) 011-831-4931

Way of R/C Off-Road Cerrado, Rua Paraiba 1323, 1st floor, Belo Horizonte, Minas Gerais; Claudio T. Correa, (031) 227-6111, fax (031) 227-6869

CANADA

Action Weelz, 462 Turcotte, Vanier, Quebec, G1M 1R6; Regent Tardif, (418) 527-5756

A&J Toronto R/C Raceway, 24 Main St., Building B, Unionville, Ontario L3R 2E4; (905) 305-1479

ATN, Auto Teleguide Nicolet, 2000 Rue Paul Hubert, Saint-Jean-Baptiste-de-Nicolet, Quebec J3T 1E5; Louis Durand, (819) 293-6097

Auto Sprint, 6065 Des Grands Prairies, St. Leonard, Quebec H3G 2R6; David Kalaylian, (514) 287-3503

Circuit Pepsi, Centre de Location, 37 du Roi, Sorel, Quebec; (514) 746-8828

Circuit Plessis, 260 Raug 9 Ouest, Plessisville, Quebec; (819) 362-3743

Circuit R/C Pro, 1500 Chemin Sullivan, Val d'Or, Quebec; JSP 1M1; R/C Modele Plus, (819) 874-3918

Circuit Teleguide St. Roch, 363-B St. Charles, St. Roch De L'Acadian, Quebec J0K 3H0; (514) 588-4254, fax (514) 588-6554

Club Avatt, 244 Jules-Richard, Deauville, Quebec J1N 3M2; Daniel Vanier, (819) 864-6262

Club RC51, 44 Rue Holliday, Sept-Iles, Quebec G4R; Sylvio Gerard (418) 968-6575; hobby shop (418) 962-6555

CRCCC, Box 309, Clinton, Ontario NOM 1L0; Eric Russell (519) 482-9429

Dynamic Hobbies, 21 Concourse Gate, Unit 6, Nepean, Ontario K2E7S4; Clark Freeman, (613) 225-9634

East Coast Model Center Raceway, 13 Glen Stewart Dr., Suite 1, Southport, Prince Edward Island C1A 8X9; Gary Stephen, (902) 569-3262

Evolution Speedway, 1935 Glengrove Rd., Pickering, Ontario L1V 1X3; Eric Lang, (905) 839-2084

Fast-Trax Speedway, RR 4, Trenton, Ontario; Russ McPeak, (613) 394-6411

Fly'n Bryan's Radical Raceway & Little Shop of Hobbies, RR #1, Site 12, Comp. 49, Chase, British Columbia, Canada V0E 1M0; Bryan Coffey/ Dani Potvin, (604) 955-0689

Honda House Motor Speedway, 384 Richmond St., Chatham, Ontario N7M 1P9; John Elliot, (519) 354-5530

Interior R/C Raceway, 34-1605 Summit Dr., Kamloops, BC, V2E 2A5; Martin Vannieuwenhuizen, (604) 374-1268, (604) 374-8458

J-T International Raceway, 127 Milligan Lane, Napanee, Ontario K7R 8A1; N. O'Neill, (613) 354-0099

Minatures & Passions, 204 St. Charles, #103, Ste. Therese, Quebec, Canada J7E 2 B4; Gilles Lachance, (514) 979-7989

MORRAC Raceway, 6449 Crowchild Tr. SW., Box 36060, Calgary, Alberta T3E 7C8; (403) 254-1386

KEY TO SYMBOLS

- Indoor
- Outdoor
- Off-road
- Oval
- Dirt oval
- Carpet
- Concrete
- Asphalt
- On-site hobby shop
- AC power
- Auto lap-counting
- Food available

Off-Road R/C Raceway, 76 Eddystone Ave., North York, Ontario M3N 1H4; Ron Lefebvre, (416) 740-0536

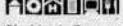

Prince George Radio Controlled Car Club, 202 Explorer Cres., Prince George, B.C. Y2M5R8; Doug Waller, (604) 561-0035


Quintrax Speedway, 610 Dundas St. East, Belleville, Ontario K7K 2M1; (613) 962-1414; fax (613) 962-7306



Randy Shantz Raceway, 1015 W. 14th St., North Vancouver, British Columbia; Steve Mulhall, (604) 945-3888



RC World, 7070 Haldibrook Rd., RR #1, Caledonia, Ontario N3W 2G8; Don Nicholls (905) 679-3177 or Keith Seguin (905) 388-9855



Ronbo's R/C Racing, RR 1 Glen Walter, Cornwall, Ontario K6H 3G4; Ron Giroux, (613) 936-0176

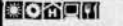

Rousillon Hobby Track, 177-D St-Jean Baptiste, Chateauguay, Quebec J6K 3B4; (514) 698-2151



Sheldon's Raceway, Box 597, Outkline, Saskatchewan; Sheldon Bradlow, 398-2232


Spinnin Wheel Raceway, RR 1, Ariss, Ontario N0B 1B0; (519) 824-1614


South Okanagan Roadhogs, Skha Lake Rd., Penticton, BC; Willie Lemm, (604) 492-5698


Strathclair Park, Old Garden River Rd., Sault Ste. Marie, Ontario P6A 5T1; (705) 759-1855



Thunder Alley Raceway, Lambton Mall, 1380 London Rd., Sarnia, Ontario N7S 1P8; Rob Smith, (519) 882-3361


Vancouver R/C Road Racers, #100-2733 Barney Hwy., Coquitlam, British Columbia V3E1K9; Roger Brown, (604) 945-3888


COLUMBIA

Club De Automodelismo Colombiano, Centro Recreativo Cafam, Kilometro 14 Autopista Norte, Santafé De Bogotá, D.C. Colombia; Jorge Delgado, 1-6130588



Club De Automodelismo Colombiano, Centro Comercial Guaymaral, Kilometro 16 Autopista Norte, Santafé De Bogotá, D.C. Colombia; Jorge Delgado, 1-6130588


Garoso Raceway, Avenida Libertadores con Diagonal Gran Colombia, Cucuta, Colombia; Gabriel Rodriguez, 975-751892



CYPRUS

Racing Model Club, Kennedy Ave. N. 42, Nicosia, Cyprus; Andrea Sotiriou, 493186; fax 493229


DENMARK

Brøndby Motor Club, Roskildevejs 460 Rodov, Denmark 2610; Søren Boy Holst, 011-45-31-472-462



Holstebro R/C Buggy Club, Mozartsvej 7500 Holstebro, Denmark 2600; Michael Brusholt, 011-45-97-412-734



Klub 144 Raceway, Bagsvaerdvej 144A, 2800 Lyngby, Denmark; Henrik Carstensen, 45-42-88-3691


Rainbow Raceway, Eriksvej, 9 Glostrup, Copenhagen 2600; P. Christiansen, 011-45-52-848-504


Thor MiniRace Odense, Sohussvej 255, Allense, Odense, Behind Alessio Hallen (Sport Centre), Odense, Denmark; Ulrich Rasmussen, 011-45-65-303-707



DOMINICAN REP.

Adoca R/C Speedway, Feria ganadera, Santo Domingo; (809) 220-5266


La Barranquita R/C International Speedway, Santiago; (809) 582-2303


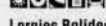
ENGLAND

Chessington Radio Car Club, Surbiton Sport Club, Riverhill Estate, Worcester Park Rd., Worcester Park, Surrey, England; Ian Spoiler, 0252-20657


Hinckley RCRC, Three Pits Inn, A5 Watling St., Hinckley, Leicestershire, UK; Bruce, 01455-890580


FRANCE

Auto Electron, 35, rue B. de Ventadour, Limoges, France 87000; M. Boudoul, 55 062763


Crame Ronca, 64 rue du Becquerel, 95370 Mons el Baroeul, France; Michael Hondequin, (33) 20042755


Lorgies Bolides, rue Beau-Riuz, 62840 Lorgies, France; Mme. Hourdequin Sabine


GERMANY


Dreykorn Raceway, Heuchlinger-Hauptstr. 43, Lauf, 91207; Hermann Hensel, 09123-81457


MC Köln, Bottgerstr., Worringen, Germany 50769; Ralf Habel, 02733-477493



Mini Car Club Dortmund, Kortschstr. 4, 4600 Dortmund 13, Germany; Roland Schwan, 0231/213609


Oberhausen-Altstaden, Am Fesder-turm., Oberhausen, Germany 46099; Josef Holl, 0208-403676



Panik Raceway, Teutonen Str. 5, Jroisdorf, Germany 53844; Guido Kraft, 0224-400259


Stoppelhopper Oberhausen, Niebuhrstr., Oberhausen, Germany 46049; Matthias Reckward, 02801-1545



GUAM


R/C International Raceway, P.O. Box GK, Agaña; Robert (Buddy) Simpkins, (671) 477-3207


HONDURAS


Autodromo Accion, Quinta Santa Maria, San Pedro Sula, Honduras, Colonia Rivera Hernandez; Eduardo Hondal, (504) 52-2061


HONG KONG

H.K.R.C. Model Car Racing Club, Lot 2130-2137, Ko Po Tsuen, Sha Tau Kok Rd., N.T., Hong Kong; Alex Chan, (852) 659-2822



Kingsville Buggy Arena, Wong Chuk Yeung Village, Shatin, N.T.; Pak Yeung, (852) 607-0828



INDONESIA

Cipaku Indah Speedway, J1 Cipaku Indah II/2, Bandung 40143, Indonesia; Cipaku Indah Hotel, Brad Lake, 011-62-22-210219


Everly's Racing, Palm St., 188, Surabaya, Jatim, Indonesia; Jhon Mudik, 011-62-31-595-888


ISRAEL


Ircca Off-Road, Rahanana, Israel; Yaron Zafiris, (972) 030549937


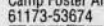
Nahshoneat, Abba Nilel Silver Str. 64, Haifa, Israel 32809; Golan Levy, (972) 039386444 or (972) 04231252



ITALY


Associazione Modellisti Cossato, via P. Maffei, Cossato 13014, Biella, Italy; Zanellato Romildo, 015-405881; fax 015-922709



JAPAN

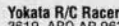
Courtney Off-Road, Camp S.D. Butler, Okinawa, Japan, FPO AP 96379; USMC Arts & Crafts, 011-81-61173-53674



Foster R/C Raceway, Camp S.D. Butler, Okinawa, Japan, FPO AP 96379; Camp Foster Arts & Crafts, 011-81-61173-53674


Hansen Off-Road, Camp S.D. Butler, Okinawa, Japan, FPO AP 96379; USMC Arts & Crafts, 011-81-61173-53674


Iwakuni R/C Track, PSC 561, Box 978, FPO AP 96310-0978; David T. Eck, 011-81-6117-53-3662


Misawa R/C Raceway, 13th Fighter Squadron, PSC 76, Box 2585, APO AP 96139-2585; 011-81-176-53-5181, ext. 226-6506



Yokata R/C Racers, PSC #78, Box 3619, APO AP 96326, Tokyo, Japan; Victor Giles, 011-81-0425-52-2511 ext 225-9025



Zama Off-Road Raceway, 17th ASGMC Unit 45013, Box 3232, APO AP 96338 Japan; SFC Ken Campbell, 011-81-3117-63-8478


LEBANON

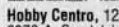
Wild Willy RCC, Oscar St-Jal Eddie, Beirut, Lebanon; 00961-1-403751

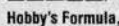

MEXICO

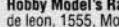
Alces Off Road, Lopez Mateos y Rayod S/N, Ensenada, Baja California, BC 22830; Jorge Bustamante, (667) 6-1476, 61477, 86729


Baja Jr., H. Valdez 151 Pte. Y Gmo. Prieto, Los Mochis Sinaloa 81200; Memo Asencio, Gaby Macias, 681-20276; fax 681-26430


Club Kyosho de Automodelismo Departino, Av. Pacifico 216 Coyocacan; Ajusco-Toluca Km 15.3 DE, Mexico 04330, Ing. Jorge Perez Holder, (525) 544-08096; fax, (525) 544-7133


Hobby Centro, 12 De Diciembre No. 3070-A, Guadalajara, Jal 45550; Alejandro Ortiz Del Toro, (36) 21-46-28


Hobby's Formula, Au observatorio 457 DF 01120; (905) 502-3620



Hobby Model's Raceway, Blvd. Garcia de Leon, 1555, Morellid, Michoacan 58260; (431) 5-01-22


Jaguar R/C Club, Calz. Zavaleta 116, Puebla 72150; Chema, Denise or Chiro, (22) 31-00-91, (22) 33-00-94


La Hielera, Prol Corregidora Nte 350, Queretaro, QRO C.P. 76160; Jorge Morelos Rabell, (42) 12-15-25


Pista Casino, Hotel Casino de la Selva, Cuernavaca, Morelos 16507; Luis Duhat, (73) 19-12-38



R/C Racing Club, Obsidiana #2900, Zapopan, Jalisco 44560; Fernando Hernandez, (3) 616-73-47



Tony's Track, Obregon 364 Sur, Culicán Sinaloa; Guillermo Prieto, (67) 165708-168141



NETHERLANDS


H.F.C.C. Hollandia, De Werf 60, The Hague, The Netherlands; G. de Jong, 031-070-3679820


NEW ZEALAND

Counties R/C Raceway, Pukekohe Showgrounds, Station Rd., Pukekohe, New Zealand; R. Northcott, 09 23 86904



Harewood Radio Control Car Club, 550 Sawyers Arms Rd., Christ Church, New Zealand; Dean Johnson, 09 03 3880 344



Papakura Indoor R/C Car Club, 25 Tainere Cres., Papakura, Auckland; Colin Perry, (09) 298-4711



Western District R/C Off-Road Car Club, CNV Bancroft/Akatea Drive, Auckland; Chris, (09) 838-5201


NORWAY


Aurskog R/C Club, Aursmoen, 1930 Aurskog, Norway; Tommy Gjeleseth, 47-63-86-21-61


Dalen Raceway, P.B. 728, 6401 Molde, Norway; Johnny Reitan, 94 64 52 95


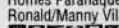
Hadeland Raceway, 2750 Gran, Gran Norway; Dag Bakke-Nielsen, 61330405


Store-Baller Raceway, 2750 Gran, Gran Norway; Ola Raastad, 61330225


PHILIPPINES

Boyer R/C Hobby Shop, Unit No. 10 Lucas Commercial Center, Marcos Hiway, Mayamot, Antipolo, Rizal; Jose "Boy" Chua, 721-2555


Philippine F1/Touring Club, Super Mall I, EDSA, Quezon City 1156; Raymond Aguilar/ Ron Villalor, 896-64-15/23-30-08



Philippine R/C Association, B.F. Homes Paranaque, Metro Manila 1700; Ronald/Manny Villalor, 23-30-08


Quezon City Radio Control Club, Quezon City Memorial Cir., Quezon City; Benjie Lumanlan, 731-94-53



SOUTH AFRICA


Banana County R/C Racing Club, P.O. Box 988, Margate, 4275; Dennis Steenmans, 27 (0) 391-20975



Gordons Bay R/C Club (GBRC), Andrew Norman Sports Centre, Gordons Bay, Cape Province; Andre Hollander, 024-512865



Holderberg Radio Control Car Club, De Beers Soccer Club, De Beers Ave. Somerset West, Cape Province; Andre Hollander, (024) 51-2865



Lowveld Radio Control Thunderdrome, Lion's C;ub Kanyamazne Rd., Nelspruit, Eastern Transvaal; Martin Van Der Merwe, (01311) 534-6415



Parow Radio Car Club, Northern Sports Complex, Parow, Cape Province; Stirling Spengler, (021) 945-4957


Phoenix Raceway, 11 Tugela St., Stillfontein, Transvaal; Lionel Edwards, (018) 4842863


Pietersburg Model Racing, Landros Marais St., Pietersburg, Northern Transvaal; Peter Van Vuuren, (0152) 293-0700



R.C. Superbowl, Elsburg Sports Club, Elsburg, Germiston, Gauteng; Dave Van Niekerk, (011) 896-1117


R.A.C.E. Off Road, Cecil Payne Stadium, Maraisburg, Gauteng; Derrick Plank, (011) 682-2173


Rustenburg Off-Roaders, Olympia Stadium, Rustenburg, Northwest Province; Jan Van Vollenhoven, (0142) 24-846


Pretoria Off Road R/C Club, Joost Bekker Caravan Park, Mayville, Pretoria, Gauteng; Gert Swart, (012) 377-3238



SPAIN


ADAM, Mina Flores de la Sienna, Madrid, Spain Alvaro Sarabia, 01-7471113



Club Modelismo Catilla, P.O. Box 491, Burgos, Spain 09080; A.J. Pereda, 011-34-47-240130


Club Social Sevillana, Crta. Pulianas S/N, Granada, Spain; Oscar Saenz, 958-275282


Motoclub Castellon R.C., Rafalafena, S/N, 12004 Castellon, Spain; Octavio Traver, (34) 64 229705, (34) 64 237411



Outlaw-Ultima II, Puerto Rico 27, Madrid, Spain 28016; Juan Vacas, (34) 915197298


ROARCR, Naval Station, Rota, Spain (P.O. Box 53, FPO NY, NY 09540-0013); PO Kelly Sexton, 011-34-56-822652


CRAEM, La Elipa, Madrid, Spain; Pablo Lorente, 91-3865952


SWITZERLAND

E.M.B.C.M. Raceway, Main Street, opposite police station, 8854 Siebnen, Switzerland; Markus Schmid, 01-9233621


ERMC Raceway, 14 Ch de Taverney, 1218 Grand-Saconnex, Switzerland; M. Maurer, 19-41-22-798-9765


JMRVC-Terraindu Levant, Chemin ou Levant, 1290 Versoix, Geneva, Switzerland; fax, 19 41 22 7790805

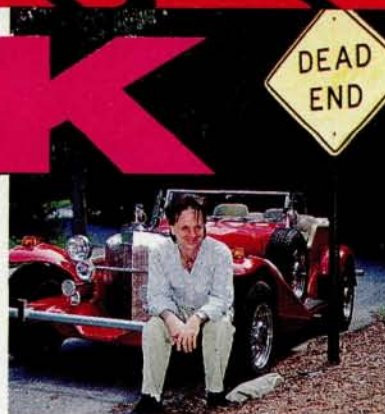

THAILAND

Bangkok R/C Spa Huamark, 164/1 Langprao Soi 96, Wangthongplang Bangkok, Bangkok, Thailand 10310; Mr. S. Sanghavan, (662) 931-8390, fax (662) 587-1186


CHRIS'

BACK LOT

by JOHN HOWELL



This is my page—mine!

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o RCCA, 251 Danbury Rd., Wilton, CT 06897. My internet address is: chrisc@airage.com

Yes! We have a winner!

OR SHOULD I say "winners"? Back in our September '95 issue, I wrote a "How To" article about photographing R/C cars, and I announced that we planned to hold a little photo contest. The rules of the contest were simple: send your best still photos and best action photos of your R/C cars.

Well, let me tell you, the response was pretty phenomenal! The number of really professional-looking pictures that showed up was overwhelming. You readers never fail to amaze me.

Back in September, I said we planned to choose two winners—Best Still Photo and Best Action Photo—but

that was before I saw the quality of the entries. I'm changing things a bit; I hadn't figured in "honorable mentions"! They'll all get a complimentary six-month subscription to the world's greatest R/C magazine.

The two lucky winners will each receive a two-year subscription! Well, without further ado, here they are...



BEST ACTION SHOT

Robert O'Bryan, Chalmette, LA
Equipment: Minolta X-700 SLR (no film/shutter speed given).



BEST STILL SHOT

Willy Loewer, Kingsport, TN
Equipment: Canon EOS Rebel, 80-200 4.5-5.6 zoom lens; Kodak film.



ACTION HONORABLE MENTION

James Rodgers, Meridan, ID
Equipment: Pentax 90WR (no film/shutter speed given).



STILL HONORABLE MENTION

Robert Woish, Conshohocken, PA
Equipment: Canon AE-1, Tokina zoom lens set at 140mm, 1/500th shutter speed @ f/8; Kodacolor 200 film.



ACTION HONORABLE MENTION

Jake Engstrom, Anchorage, AK
Equipment: Nikon N2020, 1/500th shutter speed with the aperture wide open; Fuji 200 film.



STILL HONORABLE MENTION

Alex Henderson, Wayne, PA
Equipment: Nikon 8008s, 28mm 2.8 lens, SB-25 flash (with fill flash); infrared film.